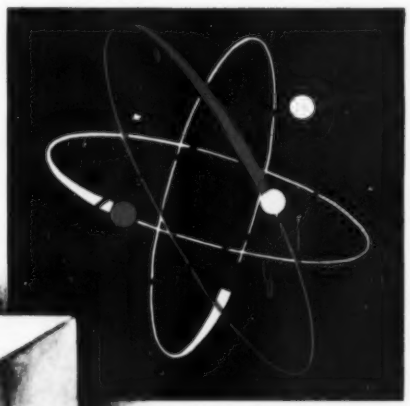
November/December–1959

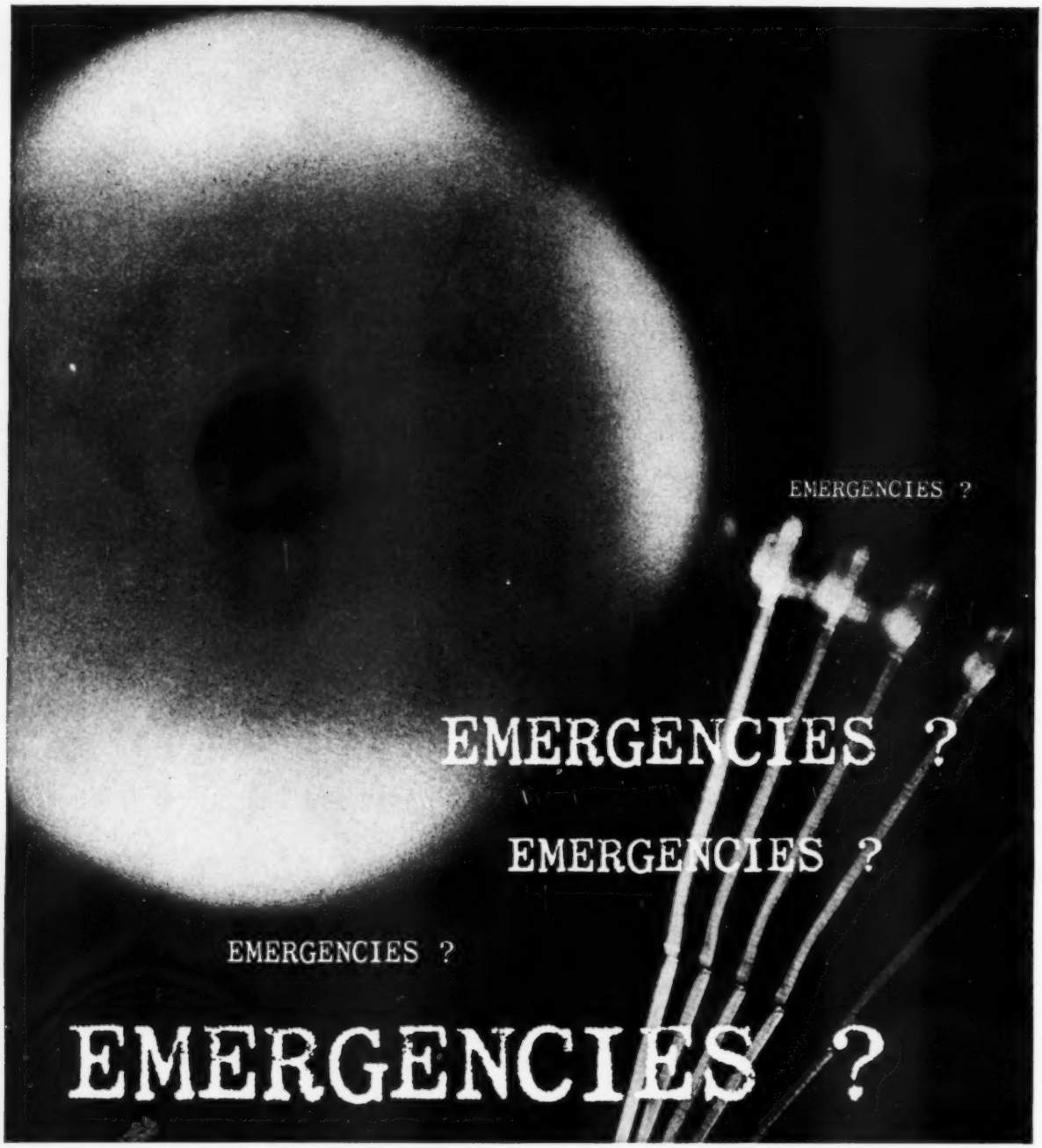
Punched Card
DATA PROCESSING

• including Punched Tape–Computers

INTEGRATING MEN AND MACHINES
Supervision, Training and Human Relations
in the Automatic Office page 15 and 19



The Magazine of Automatic Office Methods and Management



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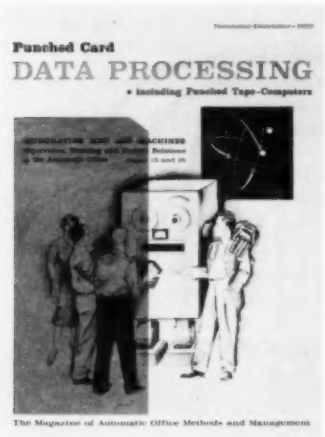
80 offices from coast to coast!

THE SERVICE BUREAU CORPORATION
a subsidiary of IBM

Punched Card
DATA PROCESSING

Volume One • Number Seven



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OBSERVATIONS . . .

from the publisher . . .

Responsibility for the Data Processing Function

MANAGEMENT is becoming increasingly aware of the benefits provided by modern data processing methods. The promised benefits of the latest equipment are great — the expenditure is also substantial.

Because of the technical aspects of this function, management must look confidently to a single principal authority within the company for guidance in establishing the most beneficial data processing operation.

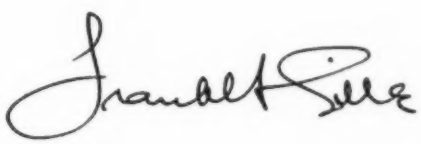
To whom can management look for reliable guidance? For this answer let us examine the necessary qualifications.

To some it may seem that knowledge of equipment, availability and capabilities would be a paramount factor. This knowledge is important but not the primary consideration. The answer would seem to lie in an awareness of management's needs. Insight into corporate fiscal objectives and policies and knowledge of manufacturing and marketing goals provide the basis for sound data processing activity.

It is an absolute necessity that the relationship between the data processing function and management's objectives be taken seriously. Treasurers, controllers, office managers, systems managers, accounting department managers, and data processing managers all *share* in this responsibility. For any one of these personnel to minimize the importance of data processing to the corporate function is to risk failure in his position.

Each of these personnel functions is represented by a business association. These groups have taken substantial steps to stress the importance of data processing to their members. The business press has also given much attention to this fact.

Individual initiative in using this information will continue to be the key factor for the person who aspires to a greater position of authority.



A Statement from Certified Grocers of California, Ltd.:

R. K. Stanton, Systems Dept. Head

Ben Schwartz, Member of Board of Directors

"We are thousands of dollars ahead with our Burroughs 205 computers..."

"...and keep a tight inventory control for our 1450 member-stores right down to the last pack of cigarettes shipped."

RANDOLPH PRICE, *Controller, Certified Grocers of California, Ltd.*

During a recent 13-week period, Certified Grocers provided more than 700-million smokes, cured (or tried to) about 5-million headaches, dished up some 6-million cans of baby food and kept a welter of household pets happy with around 12-million cans of dog and cat food. Little wonder, because Certified is the world's largest retailer-owned wholesale grocery distributor, and its member-store sales rank fourth among all of the nation's retail food distribution systems.

Randolph Price, Controller and Nick Walsh, Data Processing Manager

Certified Grocers was founded in 1922 by 15 visionary men who met in a quiet Pasadena hotel room to develop a group buying plan. They decided to pool their buying power in order to compete with the big chains. Their first purchase was a carload of soap, which they unloaded themselves at the rail-head. Their plan was successful, and by 1929 they purchased their own warehouse. Today, Certified's members own and operate more than 1450 stores in the West, and approximately 35 percent of the foodstuffs purchased in the greater Los Angeles area comes off the shelves of Certified member-stores.

Keeping an accurate tab on all that merchandise is a chore Certified has assigned to its two Burroughs 205 electronic data processing systems, purchased in 1956. One system controls the billing and inventory of a Los Angeles warehouse; the other handles the orders for goods shipped out of the San Fernando Valley warehouse and all non-food orders. Between the two computing systems, they average some 200,000 items ordered daily. When frozen foods and delicatessen items are added to the computer program this month, the billing and stock control of over 18,000 different items will be automated.

"Reliable daily use is an extremely important factor in our application," reports Nick Walsh, Certified's Data Processing Manager, "because ours is a 7-day per week, 20-hour per day, up-to-the-minute operation. Orders come in as checked off in a catalog. The orders, converted to punched cards, are merged with our stock status file on magnetic tape and entered into the computer. Our 205's process the orders, update the magnetic tape file, and produce the punched cards from which invoices are prepared. The printed invoices are then used to select merchandise from the warehouse and for the preparation of accounts receivable." Walsh continues, "We have found our 205's give us fast and accurate inventory control and save us money in the billing of daily invoices...savings that are passed on to our members." "More than just smooth operating equipment is important in a data processing installation," adds Controller Randolph Price. "A manufacturer must provide the training, service and over-all support such as Burroughs has given us ...this is essential to any successful EDP program."

Certified is also using its 205's as an extremely valuable tool for another purpose: the preparation of purchase analysis reports. The reports, subscribed to by about 600 markets, give each member a current, accurate picture of all his purchases. They help him to decide which items are selling well, which to discontinue, shelf space to reserve, and of course, guide him in purchasing. The value of the reports is expressed by one member, Mr. Ben Schwartz, Member of the Board of Directors and owner of Foods Co., who reports, "This is one of the finest services Certified offers. I receive as many as 8 or 9 different kinds of analysis reports over a period of time, at a cost which is negligible in comparison to their usefulness. These reports save me thousands of dollars!"

Controller Price points out, "These special reports, made possible by our 205 computers, would have been impracticable to prepare under our previous tub file and punched card system. Work that would have taken months now takes a few hours. The cost under our old system would have been three to five times as much and the reports wouldn't have been available soon enough to do our members any good."

The 205 systems are also being used for Certified's own complex purchasing operations. A periodic analysis keeps headquarters informed of the exact sales and distribution of thousands of items. Buyers are able to check out-of-stock situations quickly, determine the average inventory during the quarter, and accurately estimate average quarterly sales.

Just as Burroughs 205's are helping Certified's management take costly guesswork out of many daily business decisions, so are hundreds of Burroughs electronic data processing installations aiding other commercial and industrial users. Burroughs' complete line of computing systems is backed by a nationwide team of computer specialists. For additional information on how the 205 or other Burroughs electronic data processing equipment can help in your business, write ElectroData Division, Pasadena, California.

Burroughs Corporation *"NEW DIMENSIONS/in electronics and data processing systems"*

Comments from Readers

Workshop Seminars

New York, N. Y.

Let me begin by congratulating you on a splendid magazine. It gets better with each issue. As I related during our recent telephone conversation we are quite active in promoting SOURCE DATA AUTOMATION to alleviate our enormous paperwork burden . . . Your willingness to participate in this program *(of workshop seminars)* via a brief presentation on the "Elements of an EDP System" will materially enhance the course.

. . . Thank you for your splendid cooperation with the Navy Department; I am looking forward to . . . discussing your latest contributions in the automation field.

Milton Reitzfeld
Headquarters of the
Commandant Third Naval District

Conversion Aid

San Diego, Calif.

This naval activity is making a major conversion to electronic computers in the very near future. To alleviate the problem of employees worrying about their jobs and, in general, selling the fact that computers are good for the service and for all concerned in the long run, it is desired to run a series of publicity articles.

Your January/February 1959 edition contained an article entitled, "The Human Relations Aspect of Electronics" and your May/June 1959 edition contained an article entitled, "Automation: Challenge—Not Threat — to Office Workers." These articles would be most suitable for this purpose. We would appreciate obtaining your permission to publish either part or all of these articles in our Naval Air Station newspaper, the "North Islander." *(Permission granted.)*

H. D. Jack Ball
Assistant Employee Relations Superintendent
Industrial Relations Department
U. S. Naval Air Station

Basic Information

Buffalo, N. Y.

With each issue of Punched Card/-Data Processing I have felt moved to write and congratulate you upon the excellent publication which you put forth. I have held back, thinking that the next issue might not be so good. However, this has not been true, and I find that the content continues to be excellent and well presented. I hope that this excellence will continue in the future.

Bruce C. Sterne
Vice-President - General Manager
Clarkson Press, Inc.

Erratum

For the work on the *transistor*, Doctors Walter H. Brattain, John Bardeen and William Shockley were awarded the Nobel Prize in physics in 1956.

One of Mr. Claude Shannon's *(given credit in last issue for development of the transistor)* more outstanding achievements was the publication of his famous paper, "A Mathematical Theory of Communication."

THE BEST LOOKING DEPARTMENT...

. . . can now be the data processing room! Real front office beauty goes hand in hand with efficiency and unexcelled flexibility, when TAB STORAWAYS are installed. Typically attractive new data processing department (below) relies on Storaways as work centers with flexible capacity for ALL control panels as well as other needed materials.

Note how shelf dividers keep panels in place. See how door retracts out of way above compartment.

Write to us today at 995 Market St., San Francisco 3, for FREE TAB DEPARTMENT PLANNING KIT and 80 page CATALOG 10.

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THE AUTHORS

RAYMOND DREYFACK *("Office Automation — A Challenge to Personnel Relations")* is Director of Tabulating Systems for Faberge Perfumes of Ridgefield, New Jersey. He was educated in accountancy at City College of New York and New York University and specialized in writing and journalism at Columbia University. Mr. Dreyfack has published numerous articles on personnel, communications, systems and data processing in leading management and business publications.

L. J. HALE *("Managing Men Not Machines")* is Coordinator for Kansas City Life Insurance Company. Mr. Hale came to Kansas City Life in March, 1922 and was named auditor in 1939, assistant controller in 1942 and assumed his present position in 1954. He has been active in various other phases of the company, having served as personnel director, and as a member of the planning committee.

MERLYN C. KIRKWOOD *("Scheduling, Utilization and Evaluation of Punched Card Data Processing Operations")* is Supervising Mechanization Analyst in the Methods and Standards Department of The Atlantic Refining Company in Philadelphia, Pennsylvania. Previously, Mr. Kirkwood was associated with International Business Machines Corporation and then with Fidelity Philadelphia Trust as supervisor of tabulating. Mr. Kirkwood is past president of the Philadelphia Business Electronics Round Table. He is president of the Philadelphia Chapter of the National Machine Accountants Association.

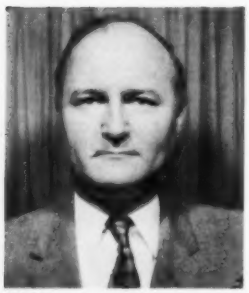
JAMES J. O'DEA *("Forms and Forms Control")* is General Manager of the Data Processing Service Company in New York City. He received his education at Fordham University and the Management Institute of New York University. Formerly a sales representative for one of the largest manufacturers of business forms, before assuming his current position he served as systems analyst for a management consulting firm, supervising the development and installation of forms control programs. He served with the U. S. Air Force during the Korean conflict.

MICHAEL R. NOTARO *("Your Tab Department in Reserve")* is President of Statistical Tabulating Corporation of Chicago, Illinois which he founded in 1933 when push-button methods were just beginning to revolutionize office procedures. Today, he heads the oldest and largest independent service bureau organization in the country with offices in principal cities, coast to coast. Apart from his business, Mr. Notaro serves as a member of the National Board of Field Advisors of the Small Business Administration; he is a director of the Central National Bank, Chicago, and a trustee of DePaul University. His activities include religious, charitable, fraternal and hospital groups and organizations and numerous national business associations.

■ ■ ■

Data Processing FORUM

QUESTION: Are Associations Adequately Servicing the Needs of Their Members and the Industry?



Donald W. Spidell,
Manager,
Machine Accounting Department,
Affiliated Publishers, Inc.

WITH ORGANIZATIONS SUCH AS THE NMAA, SPA, and AMA in mind, it is my feeling that the needs of members and the industries they represent are being met. The rapid and continued growth of such associations would indicate that this opinion is shared by many. Although it is recognized that programs and services sometimes fall short of original plans, membership and participation is a must for the man who wants to keep abreast of the avalanche of new developments in our field. It is out of the question to try to go it alone.

Participation is, of course, the key to how effectively a member will permit a professional association to serve him. Most progressive groups offer a well-rounded program tuned to the current demands of the profession. Usually more is offered than can be received. Limitations on available time and energy dictate the extent of participation. It is expected that members will have to be selective in their activities.

The active member is well aware that the rewards of participation far exceed the efforts expended, great though they may be. This is something the member who joins for what he considers prestige purposes does not understand.

To state it briefly, we are doing something for ourselves through our associations that we cannot do for ourselves alone.

The needs of the active members are being met. No association can serve the *inactive* member.

D. P. Paquin,
President,
National Machine Accountants Association

SOME ASSOCIATIONS do an outstanding job of serving the needs of their members and the related industries or professions. However, as in all fields of endeavor, there are those who never assume the full responsibility nor achieve the recognition that an active association can develop.

Although there are exceptions, it appears to me that trade associations do a superior job overall. In this statement, I include some associations that represent the various professional groups.

We must then ask ourselves, "Why do these particular groups appear to do a better job?" The following statements seem to go a long way toward answering the question.

1. They have a top level, industry or profession oriented, director.

2. The members and the industry contribute adequate operating funds.

3. Objectives are clearly defined and within the realms of possibility.

4. The membership actively participates in all association affairs.

It is my personal belief that if each member was required to pay his or her own way, the average educational or technical association population would drop better than 50%. This, coupled with the fact that most corporations pay the way of their employee members of the association without requiring some specific benefits, points the way to the prevalent disinterested attitude on each side.

Most of this can be overcome by an executive secretary or director who not only defines the objectives, but leads the membership and the profession or industry in the right direction. The problem of bridging the gap between industry and association is not always a question of who pays nor how much. Basically, it becomes one of definition and accomplishment. Accomplishment is achieved far easier when industry shows a genuine interest in association contribution and progress.

Dar E. Tisdale,
Executive Secretary,
Systems and Procedures Association

UNDOUBTEDLY, YOU CAN'T ARGUE WITH SUCCESS. The continued growth of the membership of established as-

(continued on page 33)

Computer Programmers:

Seen any new horizons lately?

Do you sometimes feel that you're adrift in a sea of sameness... that beyond your present horizon is another just like it? If so, it's important that you know what's going on in computer programming at System Development Corporation.

In addition to developing large computerized control systems for SAGE, SAC, and other important operations—SDC is engaged in a number of long-range research projects. They include: automatic coding and problem-oriented languages; development of a language to automate transition from one computer to another; study of the organization of large systems; investigation of computer design from a standpoint of programability rather than engineering; information retrieval and medical data processing.

POSITIONS NOW OPEN AT ALL LEVELS
(at Santa Monica, California and Lodi, New Jersey)

The extension of SDC's programming activities into new areas has created openings for Programmers at various levels of experience, including senior status. Please send your inquiry to Mr. E. A. Shaw, SDC, 2447 Colorado Avenue, Santa Monica, California.

"Project CLIP—The Design of a Compiler and Language for Information Processing," a paper by Harvey Bratman of SDC's Data Processing Research staff, is available upon request. Send request to Mr. Bratman at SDC.

SDC

SYSTEM DEVELOPMENT CORPORATION

Santa Monica, California • Lodi, New Jersey

Data Processing

QUIZ

QUESTIONS

1. What is a solid-state computer?
2. How do installation costs of a solid-state and a conventional high-speed computer compare?
3. Name at least three characteristics of well-designed coding systems for data processing operations?
4. What are some effective coding methods? Give an example of each.
5. What are some methods for accuracy control?
6. Name at least five causes for resistance to proposed mechanization or automation?
7. During World War II, a four-step method for training new recruits was developed for armed forces and defense work and it is still used extensively in business to train new employees. Can you give the four steps of this method?
8. Again,during World War II, a four-step method was developed and is still widely used by business to train new bosses how to supervise. Can you give the four steps of this method?
9. Name the four rules of Work Simplification?
10. What are minimum and maximum computer conversion time?

AUTOMATION ARToon

Barlach: Head, from a war memorial.
Collection Edward M. M. Warburg, New York

"THE SIGN SAYS 'THINK' NOT 'SLEEP' "

ANSWERS

1. A solid-state computer is transistorized and uses magnetic core storage.
2. With a solid-state computer there is no air-conditioning, no extra power lines and normally no special floor support required.
3. a. Minimum of characters
   b. Easy to interpret or memorize
   c. Machinability
   d. Ability to add new classifications.
4. a. SEQUENTIAL OR CONSECUTIVE NUMBER — Each invoice is assigned the next consecutive number, i.e. 21001, 21002, 21003, etc.
   b. BLOCK — A block of numbers is assigned to each type of product, i.e. 001-043 = glass; 044-123 = wood; 124-304 = steel; etc.
   c. SIGNIFICANT DIGIT — Each digit identifies a characteristic, i.e. first digit identifies territory; second digit identifies salesman; third digit identifies product line, etc.
   d. NUMERIC CODINGS OF CUSTOMERS IN ALPHABETICAL SEQUENCE — The best solutions submitted by readers to this, will be published next issue.
5. a. Key verification.
   b. Checking back to previously established control totals.
   c. Read back of source document to mechanically printed data.
   d. Sight verification of key originated data.
6. a. Inertia. "Keep the status quo."
   b. Kingdom building. "With less people to supervise, I'm less important."
   c. Loss of skill significance. "I've got the neatest handwriting" or "I'm the best adding machine operator, and if this is no longer required," etc.
   d. Fear of losing job. "If this system eliminates my job, I get fired."
   e. Questionable ability to learn new assignment. "Am I capable of learning this complicated new technology?"
   f. Readers are invited to add twenty or more to this list.
7. 1. Prepare the student.
   2. Tell and show the job.
   3. Have the learner do it.
   4. Follow up.
8. 1. Start on a pleasant note.
   2. Present the problem.
   3. Listen to the employee's story.
   4. Tell him your decision.
9. 1. Eliminate
   2. Combine
   3. Revise the sequence
   4. Change.
10. Minimum — three man-months for an expert to convert from punched card system to random access computer system.
    Maximum — 150 man-years for company-trained employees to convert to a high-speed computer system (which was obsolete within five years).

Your Tab Department in Reserve

A service bureau offers particular advantages and can be a "friend in need" to many companies

By Michael R. Notaro

HAVE YOU EVER STOPPED TO THINK what would happen if there was no such thing as a tabulating service bureau?

From the standpoint of the small company that cannot afford to install equipment, it would mean having to do without the speed, accuracy and savings of today's data processing procedures.

And what about the companies with departments of their own who rely on the service organization as a *"tab department in reserve"?*

The best way to appraise what this would mean from the department managers' viewpoint would be to take a look at the many ways these *"outside partners"* are now set up to help your company.

Management consultants have long pointed out that it is not always practical, efficient, or economical for any tab department to handle all facets of the data processing operation. That's why the service bureau maintains skilled personnel and the most up-to-date mechanical facilities to supplement your own department when the need arises. Experience in working hand-in-hand with machine accountants has given the service organization a thorough understanding of the many different types of assistance clients may need.

A look at the services bureaus provide can illustrate what this help can mean to you. *(See next page.)*

Obviously, no one company is in need of all of these services. What is important, however, is that a service bureau is always at your beck and call whenever you need help on any phase of your operation. That's why it is accurate to say that they serve as a *"tab department in reserve."*

The type of help the service organization provides, of course, depends on individual needs. Perhaps the best way to illustrate how much this service can mean to companies like yours is to list a few actual experiences. They show what can be accomplished by close cooperation between service specialists and the private departments. *(See page 13.)*

SOLVING OVERLOADS

It's no secret that an efficiently-run tab department *has* to have an occasional overload. The sound operation maintains only equipment necessary to take care of normal work volume. No one can afford to have machines standing idle just to handle peak loads. When overloads occur, there's no need to disrupt your routine, with a service bureau to call on.

COUNTERACTING ABSENTEEISM

The modern service organization is truly a life saver when illness or other emergencies, such as strikes, fires, etc., cause absenteeism in your tab department. When key personnel are not available, the service bureau is geared to take over.

AVOIDING OVERTIME

Overtime can be a drain on money and a strain on help. Too often, it affects the quality of daily work and good employee relations. When you can call on an outside organization for help, it's like adding extra hours to the day.

SPECIAL ASSIGNMENTS

When a cost revision, conversion, retroactive payroll or any other special assignment threatens to create a bottleneck in your operation, the service bureau can be most helpful. This holds whether it's a one-time job or a recurring report involving all factors of a year's business.

TESTING NEW APPLICATIONS

The service organization is ready to act as your pilot plant when necessary. It offers the soundest way to *"guinea-pig"* new applications or untried methods before putting them into operation. Keep in mind that it's far easier and less expensive to discontinue an "outside service" than to scrap your own installation.

COMPUTING SERVICE

Facilities in our organization include 650 computers which are available to machine accountants on an overload basis or for continuing work that does not warrant installing your own equipment. In this connection, it may be interesting to note that about 12 percent of normal tab department operations can be handled most economically on computing equipment.

EFFECTING RETRENCHMENT

When it is necessary to reduce overhead during periods of retrenchment, the service organization can help. Its facilities can fill the gap where cut-backs involve releasing equipment not needed regularly. It's the practical way to cut costs without sacrificing the benefits of automatic methods.

SPECIAL EQUIPMENT

Because it is not economic to maintain special equipment for only occasional use, the service bureau makes such equipment available when needed. It's the best way to augment your own installation without adding overhead.

METHODS AND PROCEDURES

It's only natural that machine accountants call on the service bureau for advice on methods and procedures. Serving thousands of different companies, an organization like ours has an opportunity to work on problems involving unusual methods and short-cuts. Without breaking any confidences, we can give you the benefit of broad concepts of methods and procedures to solve specific problems.

OVER-NIGHT AND WEEK-END SERVICE

When late source material causes a jam-up in your department, the service organization is geared to help you meet tight schedules with over-night or week-end service. Preparation time can be saved on such phases of the work as computing, key-punching, sorting, etc.

SPECIAL EMERGENCIES

Are there times when conditions beyond your control deprive you of the services of a machine in your department? In such cases, the service bureau can make the necessary equipment available on a *"do-it-yourself"* basis. This is offered as another special help to clients.

BURSTING AND ASSEMBLING REPORTS

Where volume is too heavy for your staff to handle, or where it is not feasible to burst, remove carbons and assemble reports by hand, the service organization is always ready to take over. Special equipment is maintained to save you time, trouble and money on these operations.

ACTUAL EXAMPLES FROM A SERVICE BUREAU

A leading stock brokerage firm has solved the problem of chronic overloads due to fluctuations in the stock market. When troublesome peaks arise, they call on us to avoid jam-ups and we process as many as 300,000 transaction cards for them in a 24-hour period, to produce reports on the current status of their accounts.

A manufacturer of plumbing supplies has our organization prepare the annual inventory for 30 plants. Although the assignment involves creating and processing nearly 1,000,000 cards, the job is completed in 3 weeks, without disrupting their own tab department's normal operations.

An electronic manufacturer needed help in developing a new production control system. Punching and verifying some 100,000 cards was no problem, but this client had to use the data on his premises during working hours. We met this situation by processing the work over three week-ends, without affecting the client's work-day routine.

When time is all-important, the service organization is at its best. A company with 10 sales divisions selling throughout the 48 states had to prepare sales statistics for tax purposes. With more than 50,000 items involved, the study covered each state with variations by county within the state. We received source material on Friday morning. The completed reports were delivered first thing on Monday, so that the client could complete the work and pay taxes on schedule.

By making the service organization your "night shift", it's easy and economical to get rush jobs done over-night. For example, during peak seasons, a mail order house has to have reports on today's business the following morning. They send us as many as 75,000 cards by late afternoon. The cards are processed over-night. The client has finished reports by 9 o'clock next morning.

It pays to look to the service organization when unusually heavy demands threaten to upset normal operations. For example, a large financial organization requires a monthly tabulation of stockholders, involving several hundred thousand cards. To avoid over-time and disruption, they have us process this monthly assignment.

Smart to test before you invest? A company had in mind setting up a production control system. They had plans generally worked out but wanted to make sure all *"bugs"* were eliminated before going ahead on their own. Our organization *"guinea-pigged"* the program. When all the kinks were ironed out, it was a simple matter for their own department to take over.

A huge merchandising assignment illustrates how a service bureau's nationwide facilities can be employed to do any size job. Each month, we handle this one job which involves more than six million punched cards and 50 million individual pieces of paper. It requires the services of several hundred people, together with punched card equipment and computers. Through our combined facilities coast-to-coast the assignment is handled easily and on schedule.

The service organization will go far afield to do a job when required. For example, a leading petroleum producer decided to add a giant computer to their main facilities in Asia. The job called for converting catalog and inventory items to a new punched card format, involving more than two million cards. Our company edited the items, punched the cards, verified, listed and shipped them overseas in time for the start of computer operation. In addition, we provided technicians who spent three months overseas helping the client set up the new computer facilities.

In translating the services of the service organization in terms of your individual requirements, keep in mind that this *"outside"* help costs you nothing in additional personnel or equipment. It is available to you 24 hours a day, seven days a week, on a pay-as-needed basis.

COVER FEATURE

OFFICE AUTOMATION–
A Challenge to Personnel Relations

The transition to high speed automatic data processing methods poses highly formidable personnel problems. Here's an enlightened view of the subject.

THE YEAR WAS 1661. A slight, middle-aged man trudged wearily from the great mill which was the center of employment in the hard working Danzig community. The man's head was lowered, shoulders stooped. He was tired and discouraged. He had devised his newly invented hand loom to save toil and hardship in the mill. It was to have been his bright dream of the future. But opposition was heavy on the part of the workers. They regarded his new machine as a devilishly contrived monster which would throw them all out of work and deprive them of their livelihoods.

Sighing, the inventor stepped out to walk down the narrow cobbled street. Suddenly, turning a corner, he stopped short at sight of the mob that was bearing down on him. He blinked, first in bewilderment, then in terror, as the crowd surrounded him and lifted him bodily from the ground. Flailing arms and angry hands muffled his protests. Then, kicking and screaming, he was carried off by the mob and drowned in a nearby creek.

Shocking? This is a gross understatement. Yet the history of progress has been constantly blemished by similar incidents. A century later crowds armed with sledge hammers broke into the mills to destroy Cartwright's power loom and Crompton's spinning mule. The introduction of the first steam railroad between New York and Philadelphia touched off a furor of protest. Even as late as the 1920's Senator Joseph O'Mahoney stated that, "*. . . science and invention are to blame for the present unemployment in America.*"

From time immemorial *uninformed* people have feared and resented the introduction of new methods and new machines. Yet these things are synonymous with progress, and without progress we move backwards.

With the advent of automation in industry a new revolution has been launched. The giant computer and its embodying concepts must inevitably change our way of life in a manner that even the most imaginative of us cannot accurately visualize. We are embarked upon a new era of productive ease, efficiency and—incongruously enough—simplicity. To thousands of workers, however, automation symbolizes the same monster that the loom, steam engine and automobile represented in days past.

Of What Are the Workers Afraid?

They are worried, first and foremost, over losing their jobs. Their homes are mortgaged, cars not paid for, demands on their incomes for clothing, food, shelter, home improvements and recreation ever increasing. In the midst of this along comes a monster machine that can perform thousands of calculations per second, or can do in an hour what it has taken a crew of fifty men a

By Raymond Dreyfack

century to accomplish. Well, they reason, where will this leave them? Sure, based upon this line of reasoning they have the right to worry. They're worried about now — present — next month's rent, next week's food bill.

Naturally the fears of those directly affected — where a transition to automation is in process already — will be expressed in terms of greater immediacy. The others — those to whom it has not as yet happened — will be fearful in more abstract terms. Perhaps they are not acutely worried as yet. But in back of their minds is the thought that sooner or later it will catch up with them too. To most workers the computer is a mysterious, amazing and greatly-to-be-feared bogeyman that is out to get them.

Others take a more philosophical approach. The world is not yet coming to an end. It is improbable to assume that everyone is going to be thrown out of work while offices and plants are being manned by one or two people apiece, people who will be occupied primarily with pushing buttons and flicking switches on giant machines that "*think.*" These people are worried mostly over change, the possibility of having to learn new ways of doing things, maybe even being pressured into concentration beyond their capacities or inclinations. They're worried, as men have been all through the ages, about the unknown, about that which they don't understand. They sense the inevitability of giant brains affecting their lives, but they don't know quite how.

How Does This Fear Affect Industry?

Drastically. Competition being what it is today, business, in order to survive and flourish must keep up with progress, and more and more, this is coming to mean automation and its concepts. New equipment is being placed on the market with amazing frequency. Simple, everyday office machines are being equipped to produce by-product punched card and punched paper tape output for use in automated systems. Machines are now available that sense electronic printing on paper. Not too many years ago the telephone and telegraph were regarded as marvels of the age. Today we have added Telecord, Teledata, Telediphone, Telemagnet, Telematic, Telemike, Telescriber, Teletalk, Televoice, ad infinitum. And bigger than life itself we have the computer. Yes, progress is here to stay, and we must learn to live compatibly with it.

It's safe then to assume that in the not too distant future practically every business in the nation will be exposed in some degree to automation; many will have on their own premises small, medium or large computers.

Now, remarkable as these machines are, none of us is so naive as to imagine that we can successfully convert to automation without the full cooperation and enthusiasm of our employees. Behind the conversion will go a prodigious amount of thinking, planning and study. Then will come months of setting up, editing and revising master files, programming instructions, wiring plugboards, debugging. While all this is going on business must continue as usual. Putting this transition into effect is going to cost a lot of money. We can't take any chance of operating in a way that will lessen service, delay deliveries or jeopardize the business in any respect.

A high morale will have to be maintained during the transition period. At this point let's paint a picture. Company X, with a large scale computer on order, employs three hundred people in one of its divisional offices. The personnel director has already appealed to the president that something be done to notify the workers about the proposed transition. This gentleman's response was negative. "*It's none of their affair what we do. The day I have to consult my workers regarding my plans I'll retire from this business and take up gardening.*"

Well, get those garden tools ready, Mister, because at this rate that day is not far off. It's not a matter of *consulting* with your workers; it's a question of allaying fears and apprehensions, of enabling employees to concentrate on their responsibilities, of encouraging maximum loyalty and conscientiousness and—as a consequence—maintaining satisfactory production output.

Now, let's paint some more details in our picture. The workers of Company X were not informed of any change. Next item on our list: Operation Grapevine. Buzz, buzz, buzz. "*. . . hear they're getting one of those giant brains . . .*" "*. . . least they could've done was told us about it . . .*" "*. . . yeah, I had to read about it in the newspapers . . .*" "*. . . we'll all be thrown out of work for sure . . .*" "*. . . not me. I'll be out looking for a new job tomorrow . . .* " Etc., etc.

Business as usual? Service not impaired? Work flow maintained on a normal basis? Not after stirring up a hornet's nest like this. Not with half the employees out job hunting. Not with the inevitable reaction of active opposition to any move the company is going to make. Oh well, gardening is a pleasant hobby.

Actually this illustration is not greatly exaggerated. One large company, which prefers to go unnamed, took this very attitude and plunged the firm into a chaotic situation that is costing hundreds of thousands of dollars to straighten out. To greater or lesser degrees this pattern has already been repeated many times in industry.

When a person's job security is threatened his imagination may run wild into all kinds of strange abysses. The conclusions he is liable to draw could defy logical reasoning, and even more tragic, his

actions may correspond. In order to successfully launch an automated system, one of the most vital aspects of the project will be a thorough investigation of existing systems by competent analysts. Even the best investigator is powerless to work sometimes unless fortified with the cooperation and good will of the man on the job.

Keith V. Walker, systems analyst with a national accounting firm, says, ". . . *in an office where workers are fighting the transition, you can almost feel progress being retarded. Personnel are sullen, uncommunicative. They look upon any management representative with hostility. On the other hand, give me an office where management has undertaken a sensible personnel education program, and the systems research job will be a breeze.*"

How Can Management Counteract Fear?

H. T. Rowe, Director of Information for IBM, has made this statement: ". . . *anything bearing the label of automatic becomes — automatically — a public relations and personnel relations problem.*" To start with, a committee of high level management people should be formed to consider this task. There are many aspects to be reviewed. Granted, in certain instances — and experience has proved these cases to be in the minority — management may find it has no choice but to maintain as much secrecy as possible concerning a proposed transition to automation. This would encompass unusual union situations, or situations where the conversion is of such a nature that a wholesale release of employees is inevitable. In the majority of cases, however, the change to automation will not effect a radical decrease in the number of people on the payroll. Most often automation is introduced in the midst of an expanding work load and existing labor shortages. This, combined with normal personnel turnover, since the introduction of a computer is a long term project, is generally sufficient to account for the reassignment of personnel who will be displaced by the new system.

The average worker, however, is unaware that his livelihood is not in jeopardy unless this is explained to him in terms he can understand and believe. There are many avenues available to management for the enlightenment of employees in this area.

First, we must determine the scope and significance of our transition. Even if desired, it would be no simple task to keep the knowledge of such a move from circulating throughout the company. Special equipment and supplies will have to be ordered. Studies will have to be made. Meetings will have to be held. In ninety-nine out of a hundred cases the news will leak out whether we want it to or not. It then becomes the responsibility of management to see that the information is derived from the company and not from the grapevine where it will become horribly twisted and deformed.

An announcement, therefore, is in order. The timing of the announcement is important. If it is made prematurely we will be faced with the problem of having the enthusiasm we worked hard to instill in our workers wane. If the announcement is too late we may then assume that a certain amount of damage has already been done by the heavily ranked rumor monger brigade. There is no rule of thumb to apply to this problem of timing. Each situation will be unique. The next task is how to let the people know. Here we have more flexibility. To begin with, it is often a good idea to call a special meeting of the staff and to tell them frankly and honestly what is proposed, how it will benefit the company and how it will benefit them. This can be followed up on a periodic basis with lecture sessions, articles in the company organ, or in the local trade journal, classes, tours, question and answer sessions, etc.

One point, of course, must be stressed above all others wherever possible, and this assurance should be repeated frequently throughout the transition period. *Nobody will be thrown out of work as a result of the change to automation.* Management must first determine that this is a fact. Then management must make sure the people understand the reasons for this assurance and have faith in their sincerity.

A computer, if properly viewed, is a rather intricate contraption. The automation concept itself is new and dramatic. It's not difficult to draw people's attention to the fascinating aspects of the conversion. Get them interested in what is going on — get them to feel they are *participating* rather than being left out — and allies can be won over to help the transition rather than hinder it.

In his book, *The Office in Transition,* automation consultant Eugene F. Murphy writes, ". . . *employees take pride in being associated with something spectacular, something unique, that distinguishes them from their associates . . .*" One large insurance company, in preparing its employees for automation, conducted specially guided tours of the new installation, encouraged questions, invited attendance in specially organized automation classes.

Where a computer is being introduced there's a double selling job to be done. First, management must be sold on the benefits and capabilities of the new system; then management must sell personnel on the advantages of the computer to *them* as well as to the company. These advantages are valid and important, and in propagandizing the system they must be cleverly highlighted. It is hoped that the following rundown of quotes will help to point up some of these benefits to be derived.

1. ". . . *the intelligent application of electronic*

data processing systems does not hinge on the cutting of personnel but rather on the availability of information which heretofore was impractical or too costly to obtain." W. C. Rockwell, Remington Rand.

2. "*. . . owing to the very nature of electronic machines, the jobs replaced will be the repetitious, monotonous, and often dreary tasks performed primarily by clerical help at the junior level. These machines create jobs too. Their design, manufacture, sale, operation, and maintenance occupy a large number of people with a wide variety of skills. The coders and programmers needed to prepare instructions must have more skill than the average senior clerk. The new jobs created by electronic systems are definitely of a higher type than the jobs they replace . . .*" Wesley S. Bagby, Pacific Mutual Life Insurance Co.
3. "*General Motors Corporation points out it has 200,000 more employees in spite of all the new and modern equipment it has installed in the past few years.*" From *Calling All Jobs*, National Association of Manufacturers.
4. "*. . . mechanization is nothing new, and without it our economy never would have grown. Indeed, mechanization is essential if the economy is to grow in the future. Over any significant period of time, mechanization creates more jobs than it eliminates . . .*" Richard M. Wight, International Business Machines.
5. "*I do not know of a single solitary instance where a great technological gain has taken place in the United States that has actually thrown people out of work. I do not know of it; I am not aware of it, because the Industrial Revolution that has taken place in the United States in the past 25 years has brought into the employment field an additional twenty million people.*" Philip Murray, C.I.O.
6. "*No economist in his right mind argues that it is wrong to make men more productive with finer tools. When production increases, prices are reduced, consumption increases, and more must be produced. Automation is the servant of this cycle, which has always been a marvelous one for mankind.*" H. T. Rowe, International Business Machines.
7. "*Through charts or other visual aids, show how past acquisitions of machines in the company, both in the factory or in the office, have affected employees; how many have been absorbed; how many have better jobs; how the work week has been shortened.*" Eugene F. Murphy, automation consultant.

Points such as these, along with specific information pertaining to the transition at hand should be communicated to the workers as openly as possible. Meetings, house organs, lectures, classes — these are but a few of the available channels of communication. In dealing with these problems of personnel enlightenment it is a good idea to consult with the equipment manufacturer and seek his advice. He is familiar with the situation, has studied its various aspects, and has case history information in his files.

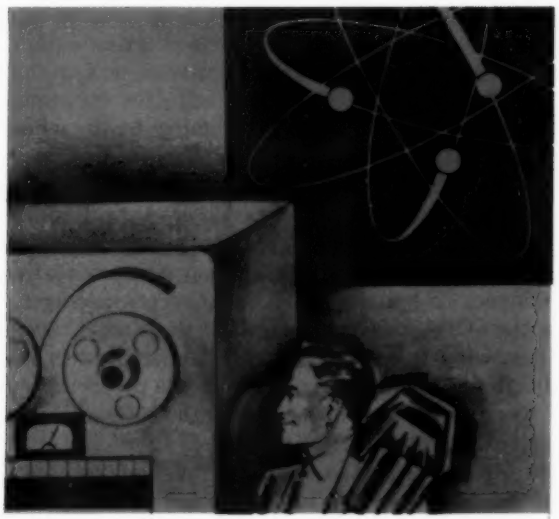
The local press, too, must not be overlooked, particularly in a town where the company involved constitutes a major source of employment. It is important that employees learn of the proposed transition from management rather than from the newspapers. Here again we may possibly have another selling job on our hands. It's quite possible that the local editor might be harboring some wild notions concerning the evils of automation and a scare story on his part could do considerable damage to morale. It is management's task to acquaint him with the true facts and debunk any misconceptions he might have.

Temporary Displacement Rather Than Permanent Replacement

With regard to jobs the major problem is not the release of employees, but their displacement. This takes on a more serious aspect when it involves middle-aged or elderly people who are generally less easily adjusted to change. In most companies job openings for these individuals — many of them possessing records of long and faithful service — are not as plentiful or flexible as junior opportunities. Here, special efforts should be made not to reduce the status of such people as a result of the transition. This can often be accomplished by considering reassignments of this type early in the game. Anticipate such changes on an individual basis, striving to adjust as many of them as possible even before the transition itself goes into effect.

Potential benefits to be derived from automation are numerous. Reduction of tedium and monotony, work simplification as a result of routine details handled automatically, the birth of a whole new field of computer training and skills and — inevitably in the long run — a shorter work week which will provide more time for relaxation and travel. More time for music and art and study, the good things of life. More time to buy more products and so nourish and bolster the economy.

Automation and computers can help to make these things possible. But, as always, people will be needed to set the wheels into motion and keep them turning. No matter how far we advance in the fields of science and progress, people will always be needed. For this reason they must not be ignored or overlooked. They're entitled to know the score. It's to management's advantage — both morally and financially — to see that they do. ■



Managing Men –Not Machines

There are no tricks for getting along with people. A competent manager must have special skills to direct employees and move them to work effectively.

By L. J. Hale

HOW MANY PEOPLE BELIEVE that at some time in the future there will come a day when machines will be perfected so that there will be no mechanical errors, that the machines will not break down in the middle of an important run and human beings will cease to make mistakes?

I guess we will all agree that that time will never come. We are witnessing a period, however, when the mechanical tools we use are so improved that the errors made by the machines themselves are of no great consequence in the over-all picture.

There are some conditions we can do nothing about, while there are some conditions that we must do a lot about.

Government, law, politics, economic controls, unions, social changes, international relations, wars, are a few of the things we can't do much about. We can do a lot about human understanding, attitudes, self-control, leadership, fairness, and many others.

Areas for Improvement

Management does not expect you to do anything about the first group—as a matter of fact they cannot do very much themselves. But management does expect you to do a lot about the second group.

It is very important to management that the work in the office be gotten out accurately and on schedule. This cannot be done, however, unless the personnel have been trained properly. The machines will only run as well as the operator who runs them does his job. Provided management has supplied all of the equipment that is necessary to produce the work, what other factor does management have to rely upon to see that the production schedule is kept up to date?

The answer is personnel. But even if management has provided the personnel in sufficient numbers, does it always mean the work will be on schedule? The answer is no. No matter how many people management supplies, the work will not be turned out properly unless the personnel are properly trained to do the job.

Training, therefore, must be the key to efficient production. We know the manager cannot do the work himself, and still do justice to his supervisory

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position. As you all know, managing is in itself a job, and the manager must learn to delegate the work if he expects to get cooperation from personnel.

We all learn by doing. That is the key to the selection of personnel for advanced positions. Job rotation will soon convince the supervisor or the executive whether or not an individual can handle people. Varied training enables an employee to secure an over-all knowledge of the business in a much shorter time than it would normally take, and permits the one in charge to observe the reactions not only of the one in training, but also the personnel supervised.

Too many of us are prone to feel that since we came up the hard way all others should do the same. We don't realize that in the past few years new equipment has been brought into the office which makes jobs more specialized than they have ever been. With added refinement which has made possible increased production and likewise increased personnel, the executive becomes further removed from personal contact with employees.

Gradually the executive is losing some of the personal touch with his employees that was his pleasure a few years back. He can no longer call his employees by their first names. As a matter of fact, he often does not know when a new employee is hired until he sees him at work.

Instead of employing general office clerks the personnel department must now seek specialists in most every line of office work. Special skills are needed to run the equipment that is now in the office.

AUTOMATION ARTOON

Daumier: The Towman

"THE OPENING WE HAVE IS FOR A WORKING TAB SUPERVISOR"

Training As a Solution

What, then, is management going to do when these specialists cannot be found for the positions available? The answer again is training. Management must depend upon the managers to train their employees in the proper methods of production, and the manager must take the same position with the employees in training, advising and counseling as did the office executive of several years ago.

Just what is a manager? He is one who has responsibility for directing others in the performance of work, and for inspecting with authority the results of that work.

In other words, the manager must of necessity be *"top management"* to the employees under his direction. He is responsible for the attitude the employees have toward the organization. He must be a leader. He must counsel with them about their ambitions, their troubles and even their social well-being.

For the manager, the ability to get others to work effectively is a moral obligation as well as a business responsibility. It is a moral obligation because an employer has a right to expect an honest effort in return for paying an honest wage.

It is a business responsibility because if the supervisor does not develop a working team, the business cannot be run successfully, and will not succeed as it should. Management expects that the manager be able to make sound decisions. Sometimes these decisions must be made quickly. It calls for discrimination, occasionally tough-mindedness, but above all, an honest intellectual approach. He must have the courage to translate his conclusions into decision and action.

The modern data processing manager has these following factors at his disposal with which to work: Manpower, Machines, Materials, Methods and Money.

All of these are furnished by management and in return it expects production and control from the data processing manager.

In order to achieve production control, the data processing manager must, with the materials furnished, insure that the work flows through the office —in the right quantity—of the right quality—at the right time—to the right place—at the right cost.

Throughout the ages, the ability to anticipate and to discount bad ideas, and to sense in advance and to appropriate good ideas, without waiting for events to indicate their goodness or badness, has been considered the supreme achievement of man as a thinking animal. That is the quality in individuals that makes them leaders instead of followers.

Good judgment is the result of careful thinking and planning in advance and there is no substitute for it. You can't laugh off or scorn the fellow who comes up with the right answer, if you know that he was the one who solved the problem.

To my way of thinking there are no tricks to getting along with people. Emerson had the right thought when he said, *"What you are, speaks so loudly I can't hear what you say."* Since what we are and what we think are inseparable, our attitude toward our employees as a group is far more important than all the advertised, people-persuading tricks we can learn during our lives.

Personalities

If you find that you are referring to your employees as "they" instead of as individuals, then it is time that you check up on your attitude toward them. For the same reason, if you find that your employees refer to management as *"they"* you should again check up, not on the employees but on yourself, and your attitude toward them. Don't train, or set an example for your employees to follow the *"generalities line."* Teach them to think in direct terms, as you should think also.

Remember, there are no two employees alike. They all differ in disposition, personality, background, health, experience, morale, ambition, etc., but each one of them is very proud of himself as the Creator has made him.

Every normal human being needs to be recognized as an individual before he can be and do his best. Those who fail to get such recognition from their employers will get it elsewhere; loyalty, too, will soon go the same path. Each employee knows his own replaceability and the insecurity that goes along with it.

Employees can't always see that there is the opportunity, even through doing repetitive tasks, for promotion through service. If this is not clearly explained to them they are easily influenced by outsiders who do offer recognition, security and personal gain.

What does top management expect from the data processing manager? Exactly the same things that you expect from those who work under your direction.

Here are a few things that the Life Office Management Association found through a study of more than 3,000 clerical employees who were rated by some 300 supervisors. The first 10 of 16 basic traits that the supervisors found to be most desired were: ability to work with others, adaptability, attitude toward the company, common sense, cooperativeness, courtesy, dependability, disposition, efficiency, and initiative.

Doesn't it seem strange to you that the average company will spend more time and money investigating the purchase of a piece of equipment than it will in the selection of its employees? No one would think of purchasing a piece of equipment without first determining whether or not it will do the job for which it is to be purchased.

Yet companies will hire an employee without convincing themselves that the new person will be able to do the job assigned, that he will fit into the picture in that department and that he has the ability to progress in a manner that will assure the company it has made a sound investment.

No doubt those of you who are in supervisory positions get a chance to talk to prospective employees before they are hired. What do you judge in an applicant? Do you have a mental picture of what you want in the applicant when you are interviewing him? If you are like the majority, you don't have.

Before you can judge an applicant satisfactorily, employ him, and then place him in the right job, you need to do two things:

1. Analyze the job to be filled, and set the standards required for the successful performance of that job.

2. Establish a pattern of the type of employee you desire.

Your job analysis should show:

1. A breakdown, step-by-step, of the work to be performed, and the time that can be allotted to each function of the job. The time element can be rough but the analysis must be complete and in detail.

2. The personal requirements necessary to fill the job. These would be the mental, physical, educational and social factors required. You should also determine if any previous work experience is necessary.

Unless the department manager has the above facts before him when he interviews the prospective employee he cannot possibly make a proper selection. So much depends on the original selection that it cannot be over-emphasized. It must be borne in mind that the company has a responsibility toward that new person, in that a true picture of the job be shown so that the applicant knows from the start what *(in general)* the true facts are about his job.

You are probably wondering why I am continually stressing the training of the new employee. The first three months a new employee is on the job will set the pattern for his future behavior in your office.

Know Your People

To work effectively with and through widely differing individuals, we must learn to know each and every one like a book. We must learn his personality, peculiarities, interests, ambitions, his feelings, his health and condition and above all his ever-changing mind.

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We have only one choice to make—either we are going to contact all of our employees one at a time regularly as personal acquaintances and as friends —or we will have to deal with them in groups as strangers. Why is frequent personal contact necessary in the training of new employees?

O'Toole Associates, well-known management consultants, say that there are three laws of learning:

The Law of Readiness: Learning involves interest, desire, willingness and proper conditions. Both the trainee and trainer must have interest, desire and willingness to learn. We must set up proper conditions to aid the training.

The Law of Effect: Learning results in satisfaction to the trainee and the trainer. Failure to learn causes defeatism and harms morale.

The Law of Exercise: Learning involves repetition. Practice makes perfect. A trainee must have the opportunity to practice his knowledge under direction, to develop skill.

It is very necessary that the trainer or supervisor create in the new employee, as quickly as possible, the Law of Readiness, which is interest, desire, and willingness to learn. There is always a reason for an individual's behavior. In a great many cases, the behavior of an individual can be traced to the first few months of his employment when someone didn't take the time to properly train him in the fundamentals of the job. In dealing with employees, we must approach trouble in the same manner that you would mechanical trouble—there must be a cause and a cure.

The data processing manager must know his job thoroughly. He must be well versed not only in the jobs under his supervision but he must also have a working knowledge of the jobs ahead of him. How else can he hope to succeed?

What do some of your people look for in you as a leader? Have you ever stopped to analyze what they might expect of you in order that they might be proud to be associated with your department?

Employees as a whole want to follow a leader who is not afraid—not afraid of his position, not afraid of his own boss, not afraid to tackle a tough job, not afraid of the people who work for him and not afraid of honest mistakes, either his or theirs.

Leaders are men who have faith in the ability of their work to speak for itself, they are not afraid of their jobs nor of anyone who threatens their jobs. They are always free of self-consciousness, and they are always themselves whether with top executives or with their own men on the job.

Goals

Successful management is in the direction of people and not in the direction of things. Whenever you reach the point where you feel that no one else can handle your work as well as you can handle it, you are slipping. Business sometimes loses its best leaders but still carries on and progresses.

Yes, management expects a great deal from its managers. Very important functions of the data processing manager are planning, work simplification and control of the work loads. The prime objective of any work load control program or cost control is the establishing of a cost conscious personnel.

Before controlling the work, however, the system through which it flows should be as free of obstacles as possible. Any improvement in method will probably improve the flow of the work, but the best system will not control or eliminate the peaks and valleys of production.

Work simplification and controls must go on. As we progress we will find that it is a continuing problem. However, despite all of the standards that can be set up, and with all of the controls working perfectly, there is no substitute for the loyalty and compulsion in every employee to want to do his best. Individual initiative and enthusiasm will sometimes prove far more effective than all of the controls that can be set up.

It is possible to have both, but it takes a lot of human understanding and complete cooperation between you as part of management and your fellow employees to make it work. ■

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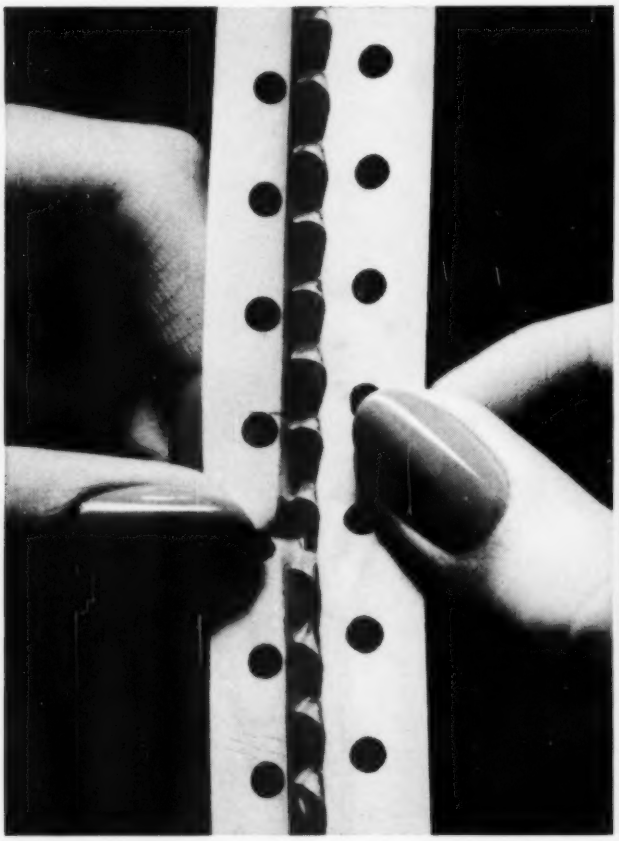

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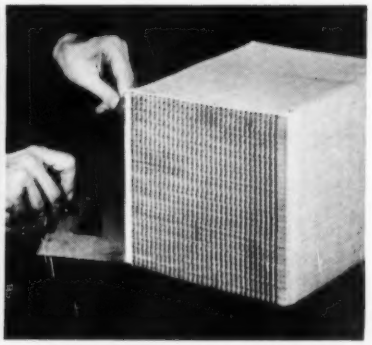

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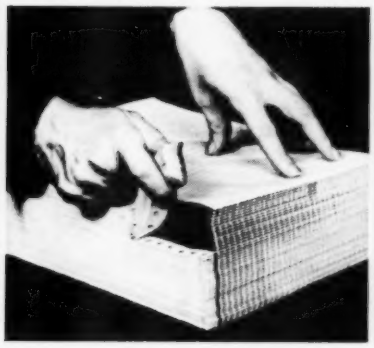

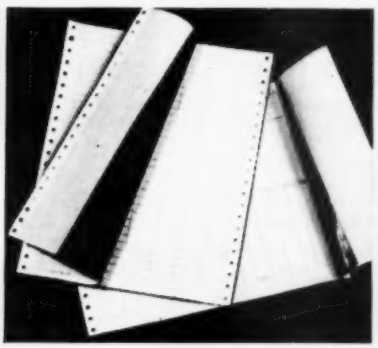

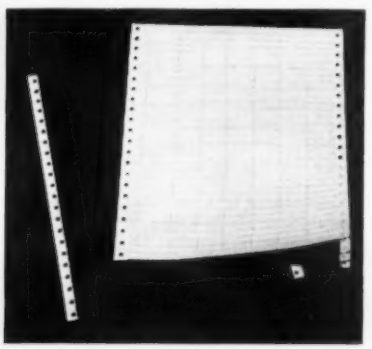

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MOORE BUSINESS FORMS

A letter to the publisher . . .

This reader wants "solutions to problems posed by basically incompatible system-machine relationship." — Can you help?

Dear Sir,

Since your publication is regular reading material around here, one might well say we find it both informative and stimulating. We sincerely look forward to succeeding issues.

I am neither a publisher nor an editor, and never have been, so there is no claim intended by what follows as to any "know how" of your business on my part. However, almost all of my time is taken up dealing with machine accounting procedures and related problems. On this basis I venture the following opinion.

There are three general areas in which a procedure planner spends his time. Technical problems comprise one such, and the planning or revising of a procedure for a job which is to be mechanized is another. Both of these areas are treated often and well in various publications, particularly yours.

The third area is that in which the planner must devise ways and means for making a basically incompatible data system "fit" mechanized data processing concepts. This type of situation arises whenever a machine unit is called upon to produce reports from data fed to it by a system which was not designed with mechanized processing in mind, and cannot be revised by the local machine unit.

The problem described would not be faced too often by the smaller organizations, since in that case revision to the basic system is relatively easy. For the large outfits, however, it is a fairly common occurrence. This is due to long established basic systems, which pre-date data processing techniques as we know them today; to procedure directives which originate at "central" offices and are forwarded to "field" activities; and to the very size of larger organizations which makes revisions to the basic system a slow and often frustrating process.

In formulating and writing operating procedures for machine personnel, one strives to eliminate exceptions and manual handling of card groups. For maximum effectiveness, procedures should call for straight, normal card processing on given control fields with constant and specific identification.

-2-

With operator turnover always a factor in the machine room, procedures which call for long break-in periods for the person new to the unit are not in the best interests of either the new operator or the organization.

All of this might well be a blessing in disguise for the individual planner. Forced to contend with unusual situations due to a basically incompatible system-machine relationship, he develops some facility for a little fancy footwork -- tricks of the trade, so to speak. This type of problem does not call so much for technical know-how as it does for flexibility in meeting conditions which, for one reason or another, are not ideal and cannot be revised.

I have seen some very interesting results in this third area. Such items as coding techniques, master decks for making machine decisions and identifications, unusual use of the accounting machine and calculating punch, collator techniques, and so forth. In short, the results of creative thinking where answers such as "the machines don't work that way," or "we will have to revise the source data so" would not suffice.

I wonder if it is not this type of problem, rather than the technical or straight procedure development type, which most often confronts the machine room supervisor or planner.

Do you think that articles dealing with solutions to problems posed by basically incompatible system-machine relationship might be of value and interest to your readers? If so, I would guess that a word or two in your next issue would bring a satisfactory response in the way of ideas and/or articles.

Sincerely,

Leonard J. Palmer

Leonard J. Palmer
158 W. 36th Avenue
San Mateo, California

Publisher's Note:

We feel this is a challenging idea. If you agree we will welcome your "solutions" and will publish all that have merit. All will be acknowledged.

An Alphabet of Morale Building

By Samuel Towsen

This treatise on improving personnel utilization is an excellent guide for all who are responsible for directing the activities of others. We recommend it for data processing managers.

Adequate Introduction to the New Job Is Vitally Important

1. Being too busy to adequately instruct your new employee increases your labor turn-over and means more new people to train.
2. Everything seems important to the new employee.
3. Bad impressions received by the employee at this time take months to overcome.

Be a Square-Shooter

1. More than anything else, workers admire a fair boss.
2. Fairness means freedom from favoritism, full credit for all work done, justice in decisions.
3. Never pass the buck to your workers when looking for reasons for department fall-downs.
4. Be big enough to admit your errors and to shoulder responsibility for failures of those who work for you.
5. When a tough job has to be done, tell them, *"I know we can do it."*
6. When the job has been done find time to say, *"Well, we did it."* Show your admiration.

Criticize Wisely

1. Remember that criticism given in public embarrasses unnecessarily.
2. Criticize acts, not intentions.
3. Compare to a standard, not to a fellow-worker.
4. In many cases it is well to begin with praise of the worker's good points.
5. Be specific in your criticisms, not general.
6. At the end of the criticism, give the worker a *"lift."* Don't leave him discouraged.

Develop Workers' Initiative

1. Initiative is a precious trait, one that is easily stifled.
2. Encourage workers to use their heads.
3. As far as possible, allow them freedom of choice in work methods.
4. Don't insist that they work your way just because it is your way.
5. With encouragement workers may develop new methods which are better.
6. Let workers try out their ideas for new methods, even if you feel that the new methods may probably not work.

Encourage and Commend Good Work

1. Workers need praise to stimulate them to do their best.
2. The old-time supervisor who said *"If you don't hear from me, you'll know everything is all right"* was using very poor psychology.
3. Praise and a deserved pat on the back will not cause most workers to get a swelled head.
4. Don't withhold deserved praise from 98% of your workers for fear that it will adversely affect 2%.
5. Praise in public is a guarantee that the praise is sincere.

(Continued on next page)

Find Ways to Build Workers' Self-Respect

1. Treat workers with consideration and courtesy.
2. The Golden Rule is still good as gold for supervisors.
3. One famous industrial executive said, *"In this company we never give an order."*
4. A request recognizes the individuality of a worker; an order ignores his individuality.

Grievances Must Be Carefully Handled

1. A grievance cannot be solved by merely ignoring it.
2. Make your workers feel free to come to you with grievances.
3. Listen with sincere interest — get all the facts.
4. Discuss the matter calmly — don't get excited.
5. Weigh your decision carefully — avoid snap decisions.

Have as Few Rules as Possible

1. The fewer the rules, the better run the department.
2. Some departments have a mass of rules and regulations which are violated almost as often as they are observed.
3. It is better not to have a rule than have a rule to which you permit frequent violations.

Imitation Is a Powerful Instinct

1. Workers unconsciously tend to imitate the habits and attitudes of their supervisors.
2. You can't expect them to obey rules which you habitually ignore.
3. You can't pan the management and expect your workers to feel respect and confidence in your firm.
4. What kind of an example do you set for your workers?

Job Simplification Is a Welcome Help to Workers

1. Study each operation in your department painstakingly and seek short-cuts and energy-saving improvements.
2. If there has been no improvement on a job operation for the past five years, the chances are that it is out-of-date.
3. Job simplification sounds better than efficiency engineering.
4. Keep up with the increased tempo of methods improvement.

Know Your Workers and Their Problems

1. Get to know your workers — their strong points, weak points, desires, hopes and ambitions.
2. Make them feel that you are vitally interested in their ambitions.
3. Workers like a boss who understands and appreciates their problems.
4. Distance lends lack of understanding — don't be a distant boss.
5. When an employee suffers bereavement or misfortune, express sincere sympathy. Offer what help you can.

Loyalty to the Group Can Be Developed

1. Strive to develop a group pride in the accomplishments of your department.
2. Hold meetings with the group — give them information.
3. Group meetings give a chance for workers to speak up, and for the group to get better acquainted.
4. Show your pride in the group.
5. Develop a healthy spirit of competition between your department and other departments.
6. Every worker wants to play on the team.
7. The awareness of teamwork is a morale builder.

Make Every Job Interesting

1. There are interest-arousing features in every job.
2. Every job has importance in the department's operation, in the output of the company, and in the total effort.
3. Spotlight and dramatize the importance of every job.
4. Tell every worker the *"why"* of what he is doing.
5. Employees want to know.
6. Tell them about plans and results.

No Promise is Unimportant

1. Even the most casual promise that you make to a worker is important to him.
2. When you say, *"I'll look into the matter,"* you are duty bound to really do it.
3. When workers ask for a decision on some matter, they are entitled to a clear-cut answer just as soon as you get the facts.
4. Never make promises that you cannot fulfill.
5. Employees are entitled to prompt decisions.

Opportunity for Promotion Is Stimulating

1. Everyone wants to feel that he is getting ahead.
2. Help your workers to improve their skill and their knowledge so that they will be in line for promotion. Encourage them to take night school courses, or extra company classes.
3. When you make promotions, be sure they are made on the basis of merit.
4. Never hold a worker back from a better job because he is too valuable on his present job.

Pride in Workmanship Is a Universal Instinct

1. Every worker has, to a greater or less degree, a pride in achievement.

2. Good supervision can do much to encourage and develop this pride.
3. Always give recognition for outstandingly good performance.
4. Poor or inadequate tools discourage pride in workmanship.
5. Let your workers know that you are trying to get the best tools and machines possible for them.

Quit Relying on the Fear Motive

1. The successful supervisor today is a leader rather than a driver.
2. Fear of censure, fear of losing the job, fear of economic insecurity — these are negative incentives. Continued fear and tension lead to fatigue and physical breakdown.
3. Whole-hearted cooperation is never built on a foundation of fear.

Responsibility Develops Morale

1. Workers grow and respond under increased responsibility.
2. Keep their jobs growing as fast as they can shoulder new responsibilities.
3. This is a form of recognition for work well done.
4. Added responsibilities, even in small things, implies your confidence in the worker's abilities.

Stimulate Workers' Suggestions

1. Realize that the average worker hesitates to make suggestions.
2. Workers can give you many excellent suggestions about their own jobs.
3. Make them feel that you really want suggestions.
4. Give credit and give publicity for good suggestions.
5. Never ridicule a suggestion, no matter how impractical.

Teach Best Methods

1. Take pains to show your workers the best ways to do their jobs.
2. Help them to make the getting of good results simpler and easier.
3. In teaching, present one step at a time — slowly, clearly, patiently.
4. Tell — show — illustrate — ask for questions.
5. Don't teach more than the learner can master at one time.

Understand That People Resist Change

There are ways that this resistance may be eliminated.

1. Explain the reason for changes that are necessary. People will cooperate better if they are given a chance to understand the reasons.
2. If possible, let the workers make suggestions on the changes.
3. Don't spring a change on your workers as a surprise. Surprises upset people. Tell them in advance. Give them a chance to get prepared for the change.
4. If workers raise objections, consider them fairly and carefully.

Value Every Worker's Desire for a Place in the Sun

1. Treat your workers as partners instead of subordinates.
2. Don't ignore any worker on your force, no matter how minor his job.
3. Every worker is a human being — treat him as such.
4. Show interest — give credit — lend a sympathetic ear to troubles.

Working Conditions Are Important

1. Employees' attitudes are constantly being influenced by the conditions under which they work.
2. Seemingly minor annoyances through repetition become irritating.
3. Check up on lighting, heat, ventilation, dirt, unnecessary noise, condition of cafeteria, rest rooms, locker rooms and toilets.

X-Ray Your Workers' Dissatisfactions

1. Grumbling is not necessarily an evidence of disloyalty.
2. Workers often don't understand their own emotions.
3. Study and analyze and dissect the causes of their dissatisfactions.
4. A sympathetic approach to workers' problems often solves dissatisfaction.

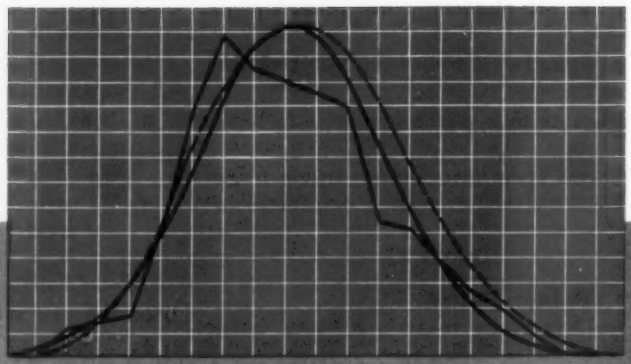
You Are of the Utmost Importance to Morale

1. As the leader of a group, you have a big responsibility.
2. You must do most of the planning.
3. Keep physically fit, keep calm, don't let irritations "get you down."
4. Be enthusiastic about things, and SHOW YOUR WORKERS YOUR ENTHUSIASM.

Zero Hour Is Now

NOW is the time to put all of these morale building devices into operation.

■ ■ ■



Scheduling, Utilization and Evaluation of Punched Card Data Processing Operations

The benefits of automation to business demand effective controls.

THE USE OF PUNCHED CARD DATA PROCESSING EQUIPMENT in recent years has exploded into prominence. Today we find machines in every conceivable business and branch of government. Although all of us like to think that the equipment in our offices is being used economically and efficiently, we know of cases where decisions were made to install machines *"to keep abreast of the times," "to mechanize is to modernize," "John Doe Company saved money," "we won't save money this year but,"* etc.

The management of most companies, although willing to temporarily experiment with applications, nevertheless expects to see economy in all installations. The high cost of labor and machine rental is continually being scrutinized. Regardless of whether the equipment is owned or rented there is a large equipment cost which must be justified. The recession of 1957-58 *(in some areas it was almost a depression)* has magnified these large expenditures, making it mandatory that proper controls are maintained and that continuing costs are properly evaluated.

A Program of Controls

How does one set up a program to justify and maintain controls? First, it is necessary to take inventory of our present position. This may be called a methods study. These methods studies should follow the usual pattern:

1. Gather the facts.
2. Analyze the facts.
3. Decide on the best way to improve the operation.
4. Follow through by putting improvement into use.

It will be found that the skills required in making methods studies of punched card installations are more complex than those required for studies of regular operations. One must have a thorough knowledge of the needs of the company and of the work currently being performed. He must be completely familiar with the capabilities and limitations of the equipment. These involve machine speeds, costs and even alternate methods of secur-

By M. C. Kirkwood

ing the same results. In addition one must have a thorough background in various industrial management techniques.

In the process of gathering the facts, the following check list can be of assistance:

1. Are the jobs necessary?

2. Are there adequate controls over each operation?

3. Are all jobs scheduled, both in and out?

4. Are volume figures available for each job?

5. Are the operators trained?

6. Is there a continuing training program in operation?

7. Are written procedures prepared for all jobs?

8. Are procedures being followed as written?

9. Are test cards used and are the test runs checked before running the jobs?

10. Is the layout best for the operations being performed?

It is recognized that we cannot make improvements until we have first put our shop in order. After making decisions that the work being done is necessary, peak loads eliminated, good work habits created and proper controls installed over all phases of work, we are ready to investigate further into scheduling, utilization and evaluation of the operation. However, some additional information will be required which will determine the scope of fact gathering and measurement. There is no way of knowing the volume of work performed or the time required to complete it without work measurement. Measuring the work of operators must be handled with extreme tact and timing. The very idea of measurement must be sold. First, it must be carefully explained to top management, as its approval is absolutely necessary if work measurement is to succeed. At this time also, it should be presented to the union or other employee representative groups. Acceptance by these two divergent groups will pave the way for subsequent recognition and approval by the immediate supervisors and the operators on the job.

Measuring the work of operators has very little value unless a standard is established for each type of work.

The question of who is to set standards must be given serious consideration. This work is a science requiring special training. If industrial engineers are available in the plant their help should be solicited, although this sort of study lies outside the regular scope of their work. Of course, if office industrial engineers are part of the staff organization, this naturally falls within their function. Some companies have found it expedient to hire outside consultants for this important task.

Conditionals

In addition to pure machine time, a standard set by the engineer would involve careful studies of time allowances, called conditionals, to take care of:

1. Personal Conditional—This includes time for trips to wash rooms, coffee breaks and other required personal matters.

2. Department Conditional — This allows for such required items as receiving from and delivering work to others, adjusting shades, sharpening pencils, getting supplies, etc. A good measurement plan would probably require the delivery and pick-up of work from operators, thus increasing actual work time and reducing the conditional time required.

3. Operational Conditional—This is the time that must be added to maximum machine time to make it realistic. Example: A sorter can handle 39,000 cards in 60 minutes. It may take a good operator more than 80 minutes to actually sort 39,000 cards. Operators required to operate one machine should not receive as large a conditional allowance as the operator running two or more machines.

In the course of studying an operation, an industrial engineer may make suggestions on ways to improve work flow, change machine layout for better utilization and eliminate poor work habits. These suggestions should be reviewed by the supervisor. Since the supervisor is very likely a skilled technician and knows the details of the work, he is in the best position to judge the value of the suggestions. He should have authority to act on the proposals as he sees fit. Of course, there may be differences of opinion. Industrial engineers usually lean towards specialization in operating equipment in order to achieve maximum results. Supervisors usually like to see an operator learn all the details of a job. Experience has shown that in small data processing departments an operator will usually follow a job from beginning to end. As the department grows, however, it may be more efficient to have the operations organized so that operators become specialists on certain machines.

In order to set standards in any work measurement program, units for counting the production on a job must be defined. These are called units of measure or units of production. Experience has indicated that these production counts should be volume figures which are a by-product of the job; for example, the number of cards put through various machines or the number of key strokes required to punch the cards in preparing them for the punched card equipment. Card counts may be taken by actual linear measurement, but it appears that the most complete and accurate method of counting production is with meters. These can be designed to count cards, cycles or key strokes. In addition to card counts and cycle counts, other units of measure must be considered if extreme accuracy of measurement is to be attained.

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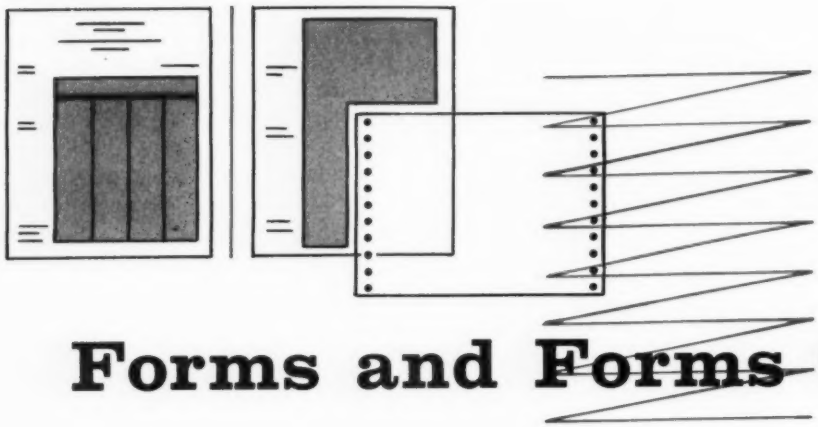


Forms and Forms Control

Good forms design is not an accident.

FORMS ARE SUCH IMPORTANT TOOLS in the complex operation of modern business that their design and construction should receive as much consideration as the selection of equipment for effective data processing procedures. Substantial savings both in forms cost and in subsequent forms processing time can be realized if a little care and study are devoted to the design of a form. It would be virtually impossible to carry on business without the use of printed forms. No matter what the operation, a carefully planned form will make it work more effectively.

Money Saving Facts

It is not possible in this brief space to make you a forms expert. Our only intention here is to point out the value of the know-how that is available and which you can rightfully expect from your forms salesman. Most forms salesmen are pretty good systems men and a systems man can usually design an attractive and fairly effective business form. Neither expert, however, can replace the other. It would take an inordinate amount of time for a forms man to study the operations of a firm before he could most effectively approach the solution to their systems problem. A systems man would have equal difficulty in amassing the storehouse of knowledge related to forms manufacturing. It is only by combining these two individuals' skills that the optimum form can be created for any job.

By James J. O'Dea

Let's first take a look at the systems man and his contribution to this team effort in good forms design. It is his responsibility to know exactly what its relationship is to other operations within the organization. Forms are as dependent upon one another in the work flow as one department is dependent on another. It is not enough to design a good Invoice, then a good Order Form, then a good Bill of Lading, etc., because while each one is meant to do a specific job, there are many common characteristics among them. Often these parts may be combined in a manifold form for faster writing and distribution. Where this is impractical, we should try to obtain some degree of conformity to a standard for easier reading on the part of those processing the paperwork.

This standard also aids in any future system work that may be needed, for it gives the analyst a neat, orderly means of following the work flow. Forms used on punched card data processing equipment must be designed in this manner to meet the the demands of a specific program. Thus, the purchaser must consider not only the form he wishes to order but the part that form will play in the entire forms chain. With this approach in mind a forms control program will start to bud.

Forms Control Program

There are many reasons for instituting a good forms control program. A comprehensive program

brings to light the use of forms which may be of little or no value and gives the purchaser the control over ordering for which he is responsible. In order to launch this program, however, the forms buyer must be in complete control of the operation and have the support of top management. Without such support he will meet with resistance from department heads as well as their personnel.

In a large organization a systems man or consultant may initiate such a program. The smaller firm must rely on the purchasing agent or office manager to get the job done. Both organizations would be wise in enlisting the aid of a qualified forms representative to assist them. He might point out such wasteful practices as two or more forms being used for the same task, unnecessary information in a form or the use of expensive paper where a lesser grade would be suitable. Above all he will advise on the most economical construction and size of the forms. Setting standard sizes and specifications enables the purchaser to take advantage of combined orders.

Economies

The printing of forms is most economical where large volume orders are involved. Once the plates have been made and the presses set up the only additional charges are for running time, paper and ink. An experienced salesman can set up a system of ordering forms in combination that will bring about the advantages of volume buying.

The forms salesman is a specialist in his field. With the cooperation of his customer he can custom fit the perfect form for any particular operation and do it economically. To be successful he must get repeat orders. Most forms representatives will extend themselves in order to retain good will. The extent of this service and the quality of work produced should be the prime factor in accepting or rejecting bids for orders. The price, of course, is important and has its place in the list of considerations a purchaser should have in mind. However, if a salesman has pointed out factors of savings in the design of a form and its handling, he should be given an opportunity for the order in spite of the fact that his cost of manufacture may be higher than other bids.

Conclusions

If salesmen are aware that price is not the prime factor they will render services to the customer that will far outweigh the cost of the forms.

In any human endeavor *communication* is the essence of achievement. Unless the purchaser effectively communicates both by statements and questions to the forms representative, he cannot possibly hope to achieve his purpose. Many types of services and assistance are available to buyers if they but take a small amount of time to state their needs, ask questions and listen to advice. ■

Data Processing Forum

(continued from page 8)

sociations, the creation of new organizations in the association field and the tremendous annual investment of business and industry in associations — these are ample evidence that associations are successful in meeting members' needs.

Broadly speaking, SPA members' needs are reflected in the stated objectives of the Association:

"To promote and foster the improvement of systems and procedures through study, education, research and exchange of ideas.

"To promote a broader understanding and acceptance of the value of systems and procedures as a component of effective management.

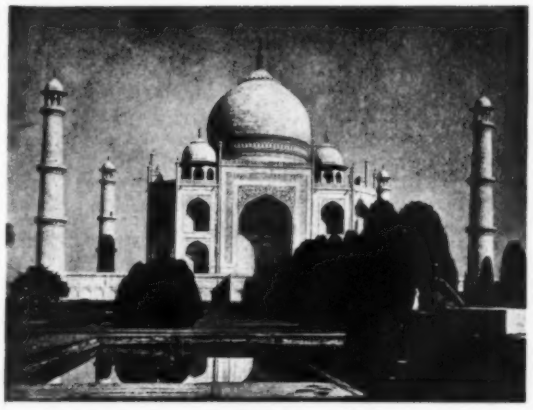
"To assist our members in development of individual technical and administrative skills and provide business and industry with a fertile source of successor management.

"To maintain the high standards of professional conduct outlined in our code of ethics."

Because of the vast diversification of its members' total needs, SPA has developed, and maintains, a program which encompasses a wide range of projects and activities. This program is designed to fulfill both the members' current and long-range needs.

SPA is developing the apparatus to coordinate the nation-wide efforts to make use of a common business language. When completed, this can be SPA's most significant contribution to business and industry. ■

AUTOMATION ARTOON



The Taj Mahal, Agra, India, 17th century
(Photo, courtesy Indian State Railways)

"I KNEW THE COMPUTER SITE HAD TO BE AIR CONDITIONED BUT THIS IS RIDICULOUS"

NEWS SUMMARY

GENERAL

Progress in an ever-changing field

Computer manufacturers are providing more *educational and technical assistance* in the form of "how-to" literature, personnel and training centers.

"Hardware" is becoming more compact, powerful and efficient.

Research and development in the punched card data processing field has evolved into a major area of endeavor for many manufacturers and suppliers. All of this research and development work is in addition to the huge amounts being spent by the Department of Defense and the Space Agency.

It is becoming increasingly apparent that the *input/output bottleneck* is being successfully overcome with vastly increased punched card, punched tape, magnetic tape and printer read/write/punch speeds.

There is a trend to use data processing equipment more frequently in installations for *non-accounting functions*, e.g. market research, statistical analysis, operations research and the like.

NEW APPLICATIONS

The Telephone Employees Credit Union of Detroit is using a Burroughs system which was initially developed for the tracking of the Atlas Missile. This equipment reads, writes and remembers electronically while *posting share and loan transactions*. The system also utilizes a 3,000 word per minute electrostatic teleprinter.

Computers work at varied tasks

A million dollar NCR 304 electronic bank automation system will be installed by the Fifth Third Union Trust Company of Cincinnati, Ohio. The system will process the bank's 70,000 *checking account records*. It will utilize the MICR development approved by the ABA.

At Randolph Air Force Base in Texas, a Burroughs 220 electronic data processing system has been installed for *personnel actions*. It is one of the largest 220 machines installed by the computer manufacturer.

Puerto Rico's government installed an IBM 705 for processing its 50,000 man *payroll*. This is the first application, to be followed by *budget accounting, tax invoicing* and *collection and control of automobile licenses*. Another IBM 705 system was put into operation by Bache and Company, Wall Street brokerage house. The system will process its *daily transactions* as well as *stock records, monthly customer statements* and perform *margin and bookkeeping operations*.

Two IBM 305 RAMAC systems were recently installed. The first was at Wilson Jones Company, Chicago, and the other at West Wholesale Drug Company of Philadelphia. West Drug will use its RAMAC for *inventory control* and *order writing* while Wilson Jones will perform *order writing, billing* and *inventory control* with its system.

Canadian Oil Companies, Ltd. becomes the ninth oil company to use Scandex, Farrington's unique "character sensing" machine, as an integral part of a *credit card system*. It will be installed in the Toronto office.

MILITARY

Air defense

System Development Corporation signed a contract with the Bureau of Research and Development of the Federal Aviation Agency (FAA) to study integration of FAA facilities and the Air Forces SAGE air defense installation.

Burroughs Corporation received a letter contract to commence work on 36 additional SAGE units. The amount involved is $9,000,000, the total network to embrace 200 installations in the United States and Canada.

Looking on as Miss By-Line (Dorothy Walker) cuts tape to open the 1959 International Systems Meeting at Toronto, October 12,are Mr. Ethan Davis, President of Toronto Chapter, Mr. George K. MacDonell, General Manager of the Meeting, and an unidentified participant.

INTERNATIONAL SYSTEMS MEETING

TORONTO, CANADA

SEVEN HUNDRED SYSTEMS AND PROCEDURES MEMBERS were treated to a varied and intense program of the latest techniques in the methods and tools of systems and procedures.

Dr. Lillian Gilbreth received the 1959 International Systems Award *"in recognition of a lifetime of leadership and accomplishments in fields which contribute so fundamentally to the sciences on which systems work is based."* Dr. Gilbreth, a management consultant and the widow of Frank B. Gilbreth, one of the originators of time and motion study, shares this honor with former president Herbert Hoover. He is the only other recipient of this award, given in recognition of his contribution to systems improvement.

The quantity and quality of speakers, topics, panels and workshops were better than ever. Although SPA membership is comparatively small (*2600 in sixty-five chapters*) the caliber and influence of its members are improving each year.

One of the most salient parts of the program was the Systems Futurama. This phase was devoted to automatic office systems and techniques. Among the outstanding contributors were: Dr. Grace Hopper, Les Mathies and Ike Auerbach. Management decision games were played using Burroughs and IBM electronic equipment.

More than forty manufacturers and distributors of office machines and equipment exhibited at the Toronto meeting. Some showed equipment which is just being introduced on the market.

A new product called Panel Logic will undoubtedly gain a wide acceptance. It's a do-it-yourself control panel wiring kit which sells for less than $100.

Some manufacturers added new features to their existing machines. Others offered new adaptations of products already familiar to you. Among the exhibitors were:

(Continued on next page)

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ADDRESSOGRAPH-MULTIGRAPH CORPORATION

Addressograph

Their new code scanning system provides automatic and accurate punched card input for IDP and EDP systems. There were two models on display:

Model 1251—51 column punched card carbon sets with five variables (used by many oil companies)

Model 1285—80 column punched card carbon sets with five variables.

Multigraph

Prominently displayed were:

A system showing how to tie in the Model 1275 AF with IDP and EDP systems.

Tab Masters — A method of duplicating punched card reports on two sides of the paper in just one run.

BURROUGHS CORPORATION

Highlight of the Burroughs exhibit was the new small electro mechanical F2000 computer. This recent addition to the Burroughs data processing family is a low cost, desk sized unit that can be put to many uses in almost any type of business, both large and small.

Also shown was a typewriter-bookkeeping machine that will eliminate duplication of work in offices.

DATAMATIC DIVISION (MINNEAPOLIS-HONEYWELL)

Honeywell's SPA exhibit this year featured the all-transistorized 800. The Honeywell 800 incorporates checking from input through output and includes Orthotronic Control, Honeywell's technique for the correction of lost or garbled information.

INTERNATIONAL BUSINESS MACHINES CORP.

The old and the new in data processing were seen at the IBM displays. The RAMAC 305 demonstrated "IN LINE" accounting methods and IBM's latest data processing machines, the IBM 409 and the IBM 632 were operating. Contrasting with this was a presentation of a 1914 accounting machine installation — a vertical sorter, a non-printing tabulator and a hand operated card punch.

REMINGTON RAND (SPERRY RAND CORPORATION)

A highlight of the Remington Rand display was a scale model of the UNIVAC Solid State 80/90 computer. This new design uses either 80 or 90 column punched cards for input data and may also be equipped with magnetic tape units.

Another Remington-Rand feature was the new Kard-Veyer, an electrically powered file with a capacity of 16,000 to 80,000 vertically filed cards. A file of punched cards was part of this demonstration.

The 1960 ISM meeting will be held in New York City. Two thousand registrants are expected and the meeting already promises to be an overwhelming success. There will be systems laboratories on *"how to"* design forms, layout space, chart, etc., as well as field trips to manufacturers and users of modern office methods. Industry seminars are planned on banking, insurance, retailing, manufacturing, wholesale operation, shipping and the many other industries which make their home in and around New York City. ■

Coming in the January issue . . .

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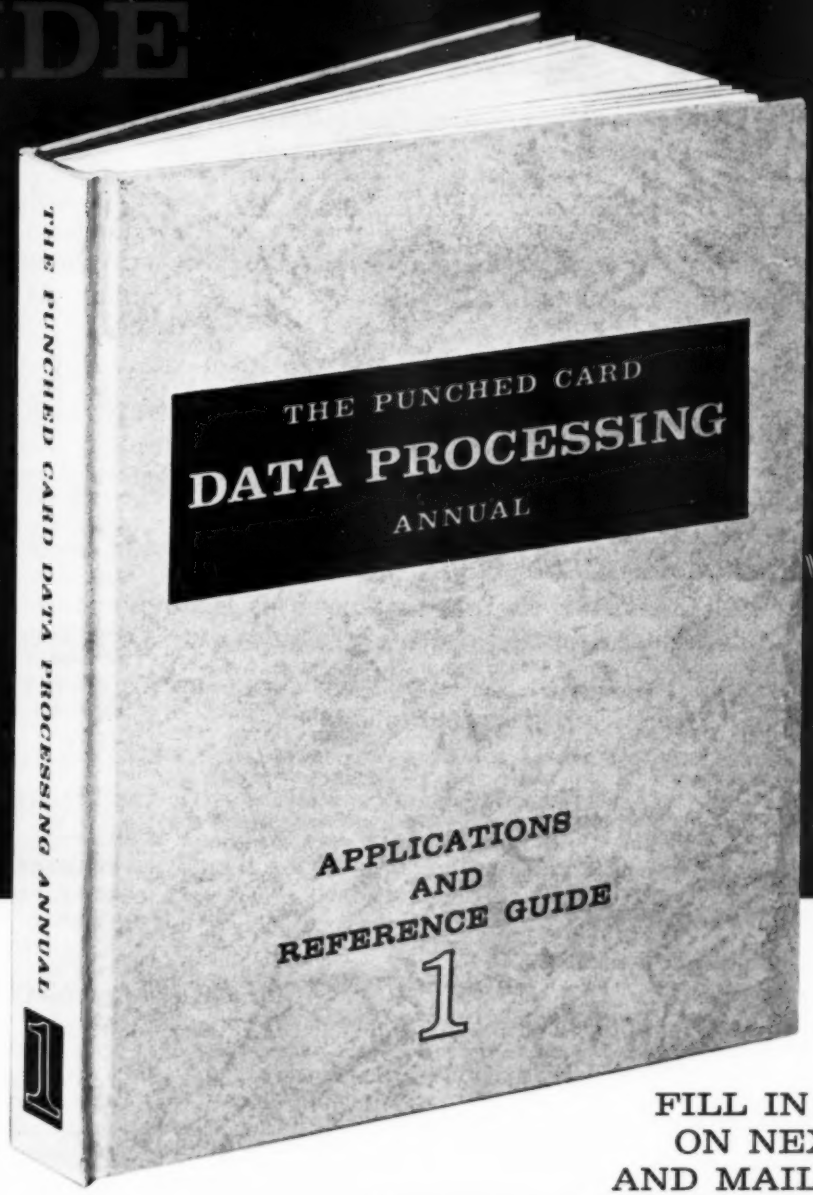

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- Production Control
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- Other

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PRODUCTS & SERVICES

GIANT COMPUTER SERVICE CENTERS PLANNED FOR FIVE KEY U. S. AREAS

Plans to establish the first nationwide chain of large-scale computer service centers, providing business and industry throughout the country with the most powerful computers now being developed, were announced by the Corporation for Economic & Industrial Research, Inc. The company claims to operate the country's largest independent commercial computing service at its Arlington, Virginia Research Center.

The total value of the computing equipment planned for the centers in five key geographical areas exceeds $25 million.

Three IBM 7090 computers will be installed in the New York City, Houston and Washington, D. C. areas. These machines will serve the computing needs of business, industry and government in the East and Southwest. A comparable machine, to be chosen from among the various high-speed computers which will become available from several manufacturers in 1960, will be installed in Chicago to serve the Midwest. These computers are expected to be installed in 1960 and early 1961, as soon as delivery can be obtained from the manufacturers. In addition, by mid-1961 a computer center will be operating in Los Angeles to satisfy the large-scale computing needs of the industrial, financial, business and defense communities in the Far West.

TAPE SEARCHWRITER

The Univac Tape Searchwriter, an integrated system which provides a method of searching a magnetic tape file for a desired item and then automatically types the information, has been announced by Remington Rand Division of Sperry Rand Corporation.

Users of Univac II computing systems will find the Searchwriter particularly valuable as peripheral equipment. It permits finding tape-recorded records and printing the desired information without consuming computer or programmer time. It may also be used as an error-checking interrogator because it incorporates the error-checking features found in Univac systems. The device is transistorized to reduce size and increase reliability. It is arranged so that typewriter, operating controls, and tape transport are within easy reach of an operator. Except for the tape handler the system is also self-contained. Power supplies, read-write amplifiers, control circuits including bad spot logic, error-checking circuits and tape control are integral.

IBM 1620 DATA PROCESSING SYSTEM

A small, transistorized, scientific computer which can perform more than 100,000 calculations a minute was announced by the Data Processing Division of International Busi-

(Continued on next page)

ness Machines Corporation.

Requiring little more space than the average desk or drafting table, the new IBM 1620 data processing system operates under the direction of an internally stored program of instructions. It can perform engineering and scientific computations on a continuous or production basis. It is particularly adaptable to problems such as highway cut-and-fill and bridge design, oil pipeline transmission and product inventory, petroleum blend evaluation, lens design, and power requirements analysis for utilities. Features incorporated in this computer include 20,000 digits of magnetic core storage with variable field length and immediate accessibility, and paper tape and electric typewriter input and output. The availability of two advanced programming systems and a library of mathematical and statistical routines simplifies programming for the 1620. Specific programs for the petroleum industry, public utilities, civil engineering, and optical firms will be available.

The 1620 will be manufactured at the IBM plant in San Jose, California. The first systems are expected to be delivered late next year. The system will rent for $1,600 a month, and sell for $74,500.

COMMERCIAL TRANSLATOR

A new language to simplify communication between men and electronic computers has been developed by International Business Machines Corporation. The language, called Commercial Translator, combines English with algebraic equations and logical expressions. Commercial problems like payroll, inventory control and manufacturing scheduling will be stated in the new language. Inside the computer these statements automatically will be converted into detailed machine instructions. A typical statement in the new language which might be used to reorder when stocks are low would read as follows: If stock level is less than 1000 or reserve level is zero then set order amount equal to 5000-stock level; move order record to order file; go to next item.

SYSTEM LINKS PRODUCTION LINE TO MANUFACTURING CONTROL CENTER

A fact-gathering system to give plant managers closer control over factory operations was announced by the Data Processing Division of International Business Machines Corporation.

The IBM 357 Data Collection System provides a network of reporting stations on the production line through which workers feed information on work-in-progress to a manufacturing control center.

Employees flash their reports by inserting prepunched cards into an input station serving their job location. The data is automatically reproduced in card form by a directly linked output unit at the central point, ready for immediate runs through data processing machines. Result: up-to-the-minute information on how things are going in the plant.

The hardware consists of:

Reporting or input stations, devices similar in size and appearance to a wall-mounted time clock, which read and transmit data to a central point from "man" and "job" cards fed into them by production workers. A small keyboard can be affixed to input stations, into which employees can enter variable information.

A control unit, which acts much the same as an automatic telephone switchboard to sequence data transmissions as they are initiated from the various input stations.

The central or output station, which reproduces in a data processing room the punched card information fed into the system by workers at input stations as far as one cable mile away. Up to 20 input stations can be wired through a single control unit and a single output unit, depending on the volume of the data transmitted.

IBM 357 systems can be purchased outright or rented on a monthly basis. The average rental cost of the system, including all associated equipment, totals about $100 a month per input station.

DOCUMENT WRITING FEATURE

The capabilities of the IBM 26 Printing Card Punch are increased when used in conjunction with the IBM Document Writing Feature, which makes possible simultaneous preparation of typed documents, punched cards and/or five channel punched paper tape. The Document Writing Feature also permits data in prepunched IBM cards to be reproduced automatically in the form of typed documents.

XEROX 914 COPIER

Haloid Xerox, Inc. of Rochester, New York entered the fast growing office copying field with the introduction of its new Xerox 914 Copier.

The new push-button copier was specially designed for use in the modern office, according to Mr. Joseph C. Wilson, president. It requires no sensitized or treated papers nor does it require any exposure or developing adjustments. The required number of copies may be made by setting a dial. There is no need to

handle the copy paper, or rehandle the original for the multiple copies. It is in this respect similar to a short-run duplicating machine rather than to the conventional copier. It is therefore expected to have many new applications.

The Xerox 914 copies all colors, and rapidly prints finished, permanent copies of any written, drawn, typed or printed document up to 9x14 inches in size. It also permits copying from bound books or magazines.

"Although no selling price has been set," said Wilson, "the Xerox 914 will be offered on a leasing plan at a monthly charge of $95, plus a charge for each copy made over a specified minimum. Leasing charges cover installation, operating instruction and machine service, including parts and labor.

AIR CLEANER

The all-purpose "Sprayit 408" air cleaner was designed to solve on-the-spot appliance and business machine cleaning problems. The leading business machine company for whom the cleaner was developed has already purchased over 2,000 of the new Air Cleaners to service its office installations.

It is especially useful for cleaning typewriters and other intricate office machinery. The "Sprayit 408" is engineered to float off clogging dust

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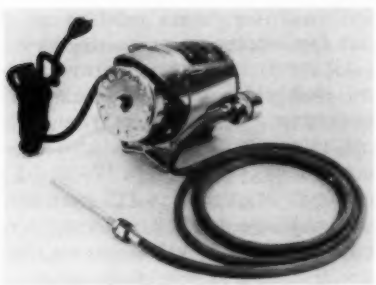


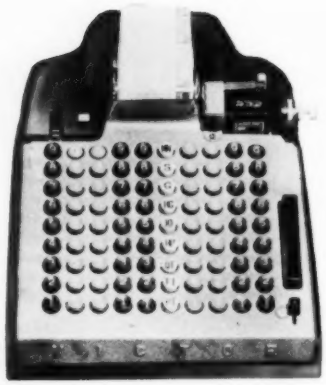
and dirt without disturbing the vital lubricants of delicate mechanisms. Weighing only six-and-one-half pounds, complete with a seven-foot rubber tube to pinpoint the air stream from its one-quarter horsepower compressor-motor, the air cleaner can be carried easily in a maintenance man's service kit. It won't disturb office or store routines. The "Sprayit 408" Air Cleaner has a rugged rotary vane compressor in a die-cast aluminum housing. It is permanently factory lubricated. Its General Electric, one-quarter horsepower, 115 volts, AC/DC, 50/60 cycle motor is approved by Underwriters Laboratories. It is supplied complete with built-in-silencer and air cleaning nozzle. The "408" cleaner has one-quarter inch metal fittings on the hose to accept the standard cleaning or accessory spray guns.

Complete, the "Sprayit 408" is priced at $38.75. An accessory spray gun which enables the unit to spray all paints, stains, enamels and varnishes is available for $8.95. With the spray gun the unit can also spray liquid wax, waterproofing, mothproofing and disinfectants. Thomas Industries Inc., 410 S. Third St., Louisville 2, Ky.

VICTOR MARK-O-MATIC

Automatic pricing of packaged stock may be accomplished through the special store model of the Mark-O-Matic price marking system made by the Victor Adding Machine Company.

Suited to meet the standards of states requiring the labeling of all packaged goods, this accurate pricing method — with no inks or stamps — prints 100 pressure sensitive or gummed labels in 41 seconds. Operation is simple with the information and coding symbols entered as to an ordinary adding machine. Pressing the motor bar sets the locked printing mechanisms into motion and offers clear easy-to-read figures through printing press action. Chance of printing too many or not enough labels is minimized through a visual counting device which registers each time a label is completed. In addition to numerical keys for prices and taxes, the Mark-O-Matic includes a tier of letter keys to indicate either size or grade. Other keys may be used for control purposes by coding store location, shelf



or bin number or brand.

Further information on how the Mark-O-Matic can be customized to meet state laws and individual business operations may be obtained by writing: Mark-O-Matic, Victor Adding Machine Company, 3900 N. Rockwell Street, Chicago 18, Ill.

HD LINE

A new, complete line of standard heavy-duty adding machines priced nearly $100 under machines of comparable quality has been introduced by Clary Corp.

Called the HD Line, it includes two full-keyboard and two 10-key models. They are:

Model 169. This is the heavy-duty, full keyboard electric. It adds, subtracts and multiplies up to eight digits.

Model 148. A heavy-duty 10-key model that has Model 169 features except a credit balance. It adds, subtracts and multiplies up to eight digits.

Model 269. A full-keyboard model which has a visual credit balance, dividing eye and extra capacity key. It adds, subtracts, multiplies and divides (without using reciprocals) up to nine digits.

Model 248. A heavy-duty 10-key machine with a credit balance. It adds, subtracts and multiplies up to nine digits.

MODEL 1250A ADDRESSER

The new electric Model 1250A Automatic Feed Addresser is a compact, self-contained unit, occupying no more than half of a standard desktop. It is particularly suited for smaller office operations, simplifying the maintenance of one's own list and allowing fast handling of all mailings. This Addresser automatically feeds postcards, envelopes, folders, and sheets up to 7″ x 10″ in size at the rate of 2000 addressed pieces per hour. Standard features on this Addresser include a transcript attachment to prepare a list on either plain or gummed tape, an automatic last stencil stop, and print roll throwout actuated when there is no material in addressing position. Optional attachments include repeater, counter, dater, and cutoff rolls.

Elliott Addressing Machine Co., Cambridge 39, Mass.

VERTICAL CARBON SEPARATOR

Adding to its line of form flow vertical carbon separators, The Standard Register Company, Dayton 1, Ohio introduced the Four-Part Model. This new unit is equipped to handle continuous form sets of four or more parts.

The Vertical Four-Part Separator is a motor-driven unit with three carbon rewind spindles separating four part sets in a single operation. Forms in excess of four parts are separated by decollating three parts and three carbons on one pass, with the remaining copies refolded as a unit for subsequent processing.

All form chutes, refold trays, and the packholder are adjustable for processing different sizes, weights, and plies of forms. The unit can handle form widths up to 17-25/32″ and form lengths up to 11″ at an approximate speed of 350 lineal feet per minute. Longer length forms may be accommodated as special items. ■

PEOPLE AND PLACES

RCA ENGINEER HEADS IRE WRITING AND SPEECH GROUP

T. T. PATTERSON of the Radio Corporation of America has been named Administrative Committee Chairman for the Professional Group on Engineering Writing and Speech, Institute of Radio Engineers (IRE).

Mr. Patterson, who is in charge of the preparation of technical publications for RCA's Electronic Data Processing Engineering Department at Camden, N. J. also heads up an annual program which this year featured simultaneous meetings this fall in Boston and Los Angeles.

FIELD REPS FOR BENDIX COMPUTER

Bendix Computer Division announced the appointment of six field service representatives to install and service Bendix G-15 digital computers in midwestern and eastern installations.

BENDIX TRANSISTOR PLANT CONSTRUCTION STARTED

Construction of a new semiconductor products plant by the Bendix Aviation Corporation was started recently with an official ground-breaking ceremony attended by community and company officials headed by Dr. Wallace C. Caldwell, manager of semiconductor products of the Bendix Red Bank New Jersey division.

The new plant, scheduled for completion next year, is a 72,000-square foot facility to be constructed by the Austin Company of Roselle, N. J. and marks the first step in a Bendix semiconductor products expansion program to provide increased production space and more extensive customer services.

PRESIDENT'S ASSISTANT

International Business Machines Corporation announced the appointment of ROBERT W. HUBNER as executive assistant to the president. He was formerly regional manager of marketing services for the company's Data Processing Division. Mr. Hubner succeeds WALTER H. JOHNSON, who has been named director of product planning on the corporate staff.

PROJECT MANAGER FOR PROJECT MERCURY

DR. JAMES H. TURNOCK, JR. has been named IBM Project Manager for Project Mercury. Dr. Turnock, who until recently has been Manager of Applied Science for IBM's Federal Systems Division, will direct IBM's efforts to keep track of the man in space and assist in his safe return to earth.

The Mercury tracking network will include both radar and telemetry installations located strategically throughout the world. The network will be completed in 1960. All new stations will be composed of van-mounted, portable equipment, with the exception of the station located in the Atlantic.

U.S.E.

Four committee meetings opened the three day semi-annual session of the Univac Users Conference in October at Niagara Falls. The Carborundum Company was host installation to the group. The committees meeting were: Administrative Problems; Operational Procedures and Maintenance; Programming; and Systems Applications and Evaluation of New Equipment.

NEW EXECUTIVE ASSISTANT

THOMAS A. KIRKLAND of Corning, N. Y. has been appointed executive assitant to Jay W. Schnackel, vice president and general manager of the Univac Division of Remington Rand. In his new post, Mr. Kirkland will also assist in marketing liaison between the Remington Rand Univac and Remington Rand International divisions. He will have headquarters in the New York City home office of Remington Rand.

VISIrecord VICE PRESIDENT

JOHN REID TOPPING was named Senior Vice-President of VISIrecord, Inc., a manufacturer of visible vertical filing systems. A vice-president of the firm for the past sixteen years, Mr. Topping is a director of the company and a member of the executive committee. He is also a director of the New York Yankees.

ROYAL McBEE DISTRICT MANAGER

JOHN L. HARRIGAN has been named as Cleveland district manager for the Data Processing Division of Royal McBee Corporation, Port Chester, N. Y., according to an announcement by Robert M. Reynolds, general sales manager.

Mr. Harrigan moves to Cleveland from Detroit where he had been a zone manager. He is an eight-time member of the Crest Club, Royal McBee's honor organization for outstanding sales activity.

NEW AMA MEMBERS

The appointment of eleven new members to the Planning Council of the American Management Association's Office Management Division was announced by Lawrence A. Appley, AMA president.

They are: H. Backey, W. Clark, D. Dwyer, K. Friedman, V. Germain, H. Klein, J. Murphy, A. E. Riddle, L. Robinson, L. Smith and J. K. Walter.

The Office Management Division's Planning Council consists of 24 authorities in the office management field who serve AMA on a voluntary basis by providing advice and counsel to the association staff in the planning of meetings held by the

(continued on next page)

division. Vice-President in charge of the division is E. Rule.

MANAGER, MAGNETIC TECHNIQUE

DR. BARLANE R. EICHBAUM has joined Aeronutronic, a Division of Ford Motor Company, Newport Beach, California, as manager of the Magnetic Technique Department, Computer Operations, as announced by Dr. Ernst H. Krause, general operations manager of Computer Operations. Dr. Eichbaum holds B.S. and Ph.D. degrees from Rutgers University and an M.S. degree from the University of Texas. He is affiliated with the electronics division of the American Ceramic Society and is a member of Keramos and the National Institute of Ceramic Engineers. He has authored several papers in the field of solid state electronic computers.

Aeronutronic, formed as a subsidiary of Ford Motor Company in 1956, became a Division of Ford on July 1, 1959, and is engaged in the development and manufacture of advanced products for military and commercial purposes in the areas of weapon and space systems, missile range systems and instrumentation, advanced electronics, data processing systems and computers.

NEW CONTROLLER

JOHN H. HOLMES, with Burroughs Corporation's accounting staff since 1951, has been appointed controller of the Military Electronic Computer Division in Detroit. He replaces C. J. McClain who was transferred to the staff of the Corporate Controller. E. W. Schening, general manager of the computer division, made the announcement.

ELECTRO DATA ASSISTANT

WALTER B. CLAUS has been named Staff Assistant to J. B. Rice, Director of Manufacturing for Burroughs Corporation's ElectroData Division. Claus is one of the six original members of the Southern California Advisory Committee on Scientific, Engineering and Specialized Personnel. In his new assignment he will coordinate engineering development with manufacturing methods.

■ ■ ■

OUTPUTS

ITEMS OF INTEREST FROM HERE AND THERE

NO CASH NEEDED

Electronic computer technology and a universal credit card system may make it possible to eliminate business transactions by cash or check in the future. Stanley M. Humphrey, a Booz, Allen and Hamilton partner, advised a national meeting of computer users that many experts in the computing field believe "from a technological point of view" such a revolutionary change is no pipe dream but is definitely within the realm of possibility. He told the more than 200 industry leaders and research experts attending the fourth annual Bendix G-15 Users Exchange Conference that problems are a certainty but the greatest barrier to this automated concept is the human factor.

SYSTEM DEVELOPMENT CORPORATION EXPANDS

Rapid growth has characterized the System Development Corporation at its Santa Monica, California headquarters, and at its New Jersey facility. The Corporation's Strategic Air Command Control System (SACCS) Division, now located in Lodi, soon will move part of its operation into a new building to be constructed in Paramus. The move will result in the Division doubling its facilities and personnel.

The new structure, containing more than 25,000 square feet will provide office space for computer programmers who are working on SDC's SACCS project. SDC is a sub-contractor to the International Electric Corporation, a subsidiary of International Telephone and Telegraph Corporation, the prime contractor for the project.

LOCAL GOVERNMENT AND IBM

Sixteen officials of Chicago and Cook County, Illinois, flew to New York this fall to inspect the powerful electronic data processing system which prepares New York City's huge municipal payroll at the rate of 1,000 checks a minute.

Controller Lawrence E. Gerosa and Budget Director Abraham D. Beame were the official hosts to the group, which included the heads of many local government departments in the Chicago area. The visitors saw the IBM 705 computer which makes up the electronic data processing center of the Office of the Controller. The center was opened last February as the first municipal operation of its kind, designed to handle "the largest single payroll under one roof."

■ ■ ■

Scheduling, Utilization and Evaluation . . . *(continued from page 31)*

A realistic work measurement program embraces factors other than just the production count. Production must be measured against the time required to achieve it. To say that a certain number of units of work have been completed means nothing in itself. However, if it is stated that so many units of work were accomplished in a certain exact time, then it is possible to compute an efficiency. By the use of a daily production report this can be shown

However, we are not quite finished. Every machine job is bound to meet with errors and down time, and true measurement must include these items. An error slip will point up the error and the time for correction will be charged back against the job. Machine down time slips control down time and furnish valuable information necessary for the scheduling of equipment.

After the program for measuring and recording production has been completed, it becomes necessary to find a way to summarize and correlate the data. Fortunately, the punched card equipment is already at hand to assist in compiling quick, accurate results. From the daily production record, cards can be punched for job number, production and actual time required to perform the work. These cards can be collated with a pre-punched master card containing a job number and a standard time for the particular job. A percentage efficiency *(standard minutes divided by actual minutes)* is then calculated for each job. The calculated efficiency may be printed by job and/or by operator if necessary. From this record and from the cards, additional reports can be run to determine performance, coverage and the utilization of equipment.

The Office Performance Report shows the total efficiency of the operator and the performance on each job.

A good measurement program will provide information which can be built into various comparative reports. For example, curves can be calculated which will indicate whether the proper level of performance is being maintained by the group. Data can also be obtained showing how much of the work in the group is covered by standards. The number of people required to perform the unit's work can be measured against the number on hand. This can be depicted clearly and simply by a line chart on another comparative report.

Using standards and cost factors for each machine, the actual cost of jobs can be calculated for use in inter-department changes. These can be calculated in advance when necessary to provide the department supervisor with quick replies to queries on costs for potential jobs.

Value of Measurement

One of the most valuable products of a measurement program is that it affords the tools with which to estimate the time required for current and future work. This in turn enables one to schedule the work in the department more closely.

These estimates do not necessarily demand the use of the exact standards which have been received from the engineers. Using rounded-off standards and knowledge of the various speeds and limits of operators and machines, it is possible to set up quick estimates of time for current and future jobs.

In the same manner, estimates for operations on other machines may be determined, using a work sheet to calculate the time required for each individual operation.

On this work sheet, columns have been allowed for keypunching estimated time in addition to Title of Report, Work Day, etc. A schedule estimate sheet prepared for all daily, weekly, monthly and quarterly jobs, etc., will tell in advance the amount of time required for all scheduled work. By preparing an estimate for *"one-time"* or non-scheduled jobs, it will be possible to estimate time for each machine for each work day of the month.

Cards may be keypunched for each scheduled estimate work sheet. Through intricate coding, it is possible to punch a period code which will control weekly, bi-weekly, quarterly and annual jobs. Therefore, once an estimate card has been punched, and the volume of work becomes static, it may be reproduced for each month's schedule. When the reproduced card is listed on a schedule estimate, the interpreted card becomes a job route ticket.

By evaluating the utilization and schedule listing, it is practicable to determine in advance when additional machines or personnel will be necessary. This will assist many times in the preparation of future financial budgets and in the placing of orders for equipment whose use must be determined well in advance of the delivery date.

As a matter of caution, one should never become so involved with work measurement that he loses sight of its purpose. Remember, it is not an end in itself. Rather, it is a tool which should be used to further the primary purpose of the group, i.e. fast, accurate service, at the lowest possible cost to the company.

In the long run, the success of a measurement program depends upon the supervisor. A program is not a success merely because the engineers have set standards. It is not a success just because good records are kept by the machine operators. It can only be deemed successful when the information which is laid before the supervisor is used—information which can improve the scheduling and utilization of machines, information which can reduce costs and lead to constant improvement in the use of men and machines. ■

NOTABLE QUOTES

"The potentials of electronic data processing systems have been recognized by management in business, industry and government as evidenced by the spectacular growth in the number of installations since 1954, the year of the first business application." Dr. Michael Shegda, *"Management Action and Planning for Successful EDP Installation," Journal of Machine Accounting*, September, 1959.

"There is no reason why mental as well as bodily labour should not be economized by the aid of machinery." *"Babbage: Forerunner of Automatic Computers," American Business*, September, 1959.

". . . concerning the future of the managerial function, two related points will suffice. One is that research, development, and automation must be continuous to be efficient and effective. The other is that those engaged in these growing areas of industry must be highly trained and skilled and therefore not subject to seasonal hiring and layoff." Carl F. Oechsle, *"Strengths and Weakness in the General Economy for 1960," The Business Outlook for 1960 (AMA).*

"A form related to a procedure assures that the course of action is followed; controls the plan of operation and provides a detailed record of the transaction." *"Analyzing Forms and Procedures," Navy Management Review*, September, 1959.

"As the computer takes over more of the operating functions in the business office, management is rethinking key assignments and responsibilities. One of the noticeable effects is the mounting power of the man who directs the data processing operation within a company." Leon R. Hay, *"Think Machines Need Extra Skills," The Journal of Business Education*, October, 1959.

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PCDP BOOK SHELF

HIGH SPEED COMPUTING DEVICES by the staff of Engineering Research Associates, Inc., Edited by W. W. Stifler, Jr., McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36, N. Y., 1950, 451 pages, $7.00.

When this book was published (1950), the impact of computers on American business was just beginning. Written during the excitement and turmoil of the time, this book has survived a decade and is still useful as a basic reference text. It begins with a detailed explanation of counters; goes on to switches and gates, machine design, arithmetic systems and numerical analysis. These factors constitute Part I and are the basic ground work for any computing system. Part II covers actual computing systems and includes desk calculators, punched card computers, large scale digital computing systems, etc. Part III, the last major sub-division, treats of the physical components, methods and techniques used to make up a computing system, as well as data conversion types and methods. The volume contains a wealth of diagrams and is written in a straightforward, non-technical manner.

PROGRAMS FOR AN ELECTRONIC DIGITAL COMPUTER by M. V. Wilkes, D. J. Wheeler and S. Gill, Second Edition, Addison-Wesley Publishing Company, Inc., Reading, Mass., 1957, 238 pages, $7.50.

Originally published in 1951, this book dealt with the EDSAC, one of the first stored program computers, and was intended to serve as a programming primer for the EDSAC. In its revised edition, the book has added the later entries into the computer field. However, the principles of programming the EDSAC apply to at least half of the newer machines either in address format or internal machine processing (binary system). This volume is excellent background for the comprehension of programming. It covers virtually all areas of the subject including many functions that are now an automatic process because of circuitry, such as floating point arithmetic.

ELECTRONIC DIGITAL COMPUTERS — Their Use in Science and Engineering, by Franz L. Alt, Academic Press, Inc., 111 Fifth Ave., New York 3, N. Y., 1958, 336 pages, $10.00.

In cooperation with the U. S. Navy, the author has intended this work as an introduction to computers and their application to science and engineering applications. As he points out, it is about computers and the specialists who work with them. It describes the functions of the various machines and lists methods of evaluating types of machines to obtain maximum solution of a particular problem. This book, then, is of general informational value to those in the scientific and engineering fields who can and should utilize these electronic tools to aid them in their research.

MANAGERIAL ACCOUNTING — An Introduction, by Harold Bierman, Jr., The Macmillan Company, 60 Fifth Ave., New York, N. Y., 1959, 483 pages, $10.00.

This book is separated into two major portions, the first concerned with financial accounting and the second with managerial accounting. For all managers and supervisors of punched card data processing departments this volume is almost a necessity since it gives an overall idea of the details of accounting, such as how and why items are treated as they are. But the second half is most important because it tells what to do with the results of the accumulated data and the resultant decisions to be derived from the evidence of the data. Throughout, the thorough treatment of the why and wherefore of applying automatic techniques or not applying them itself renders the reading of this book a valuable asset. ■

DATA . . . yours for the asking

THE NEW AMPEX FR-600 INSTRUMENTATION RECORDER is explained in a 4-color brochure now available. Many features of the machine, such as air lubrication of the magnetic tape and removal of the heads from the tape except during record/reproduce or search modes are featured. Full specifications and descriptions of accessories, optional equipment, and "human engineering" design are included. Copies may be obtained from district offices, export sales representatives, and from Ampex Instrumentation Advertising, 934 Charter St., Redwood City, Calif.

PAY - AS - YOU - GO — the wide range of data processing applications now being processed on a pay-as-you-go service bureau basis is indicated in a new brochure published by The Service Bureau Corporation. More than two hundred IBM 704-650 computer applications are listed. Typical applications listed in the engineering fields include flutter analysis, reactions analysis, cut and fill, circuit analysis and design, and crude oil evaluation.

Additional applications are listed under the categories of manufacturing and sales, insurance and banking, public utilities, physics, mathematics, statistics and information retrieval. Brochures are available from The Service Bureau Corporation, 425 Park Avenue, New York 22, N. Y. or any one of the firm's branch offices.

WHEN TO USE EDGE-PUNCHED CARDS to expedite data processing is the subject of the new, illustrated brochure just published by Remington Rand Division of Sperry Rand Corp., which also describes one of the latest advances in paperwork automation — the Electronic Synchro-Typewriter. Although this equipment is equally efficient with either punched tape or edge-punched cards, it is the latter which the brochure emphasizes. For example, when data is filed, used, and refiled repeatedly, edge-punched cards can provide the speed and accuracy required for efficient processing.

For sales orders, invoicing, purchasing, inventory and other such business procedures, edge-punched cards are easy to handle, easy to file, easy to find, and easy to use with the Synchro-Tape Typewriter. A copy of this brochure can be obtained at any Remington Rand branch office, or by writing to the company at 315 Park Avenue South, New York 10, N. Y. and requesting RT-8972. ■

INDEX TO ADVERTISERS

EDITORIAL

Office Administration Has Matured!

NOT TOO LONG AGO, systems and procedures people were recruited from the ranks of accountants and equipment salesmen. Some of them carried either a strong prejudice or a mild disdain for automatic office techniques and equipment which in those "good old days" meant punched card systems.

The passage of time and top management's expanding interest in data processing has, in most cases, softened the attitude of these old pros toward automation. More important, an increasing number of bright and refreshingly scientific management-minded young people have entered the field of office management. These attitude changes have resulted in systems and procedures people and office managers getting involved to a greater degree in data processing, from the evaluation phase to the final policing of an automated data processing system.

The resultant collective caliber of systems and procedures analysts and office management specialists is one of combined administrative maturity and open minded analysis in applying new techniques. A particularly impressive characteristic of this new cult is its dedicated ambition to keep up-to-the-minute on data processing office administration. It is this professional attitude that does much more for those in the field than the babbling of others who lament the lack of "professional status."

By Eugene F. Murphy

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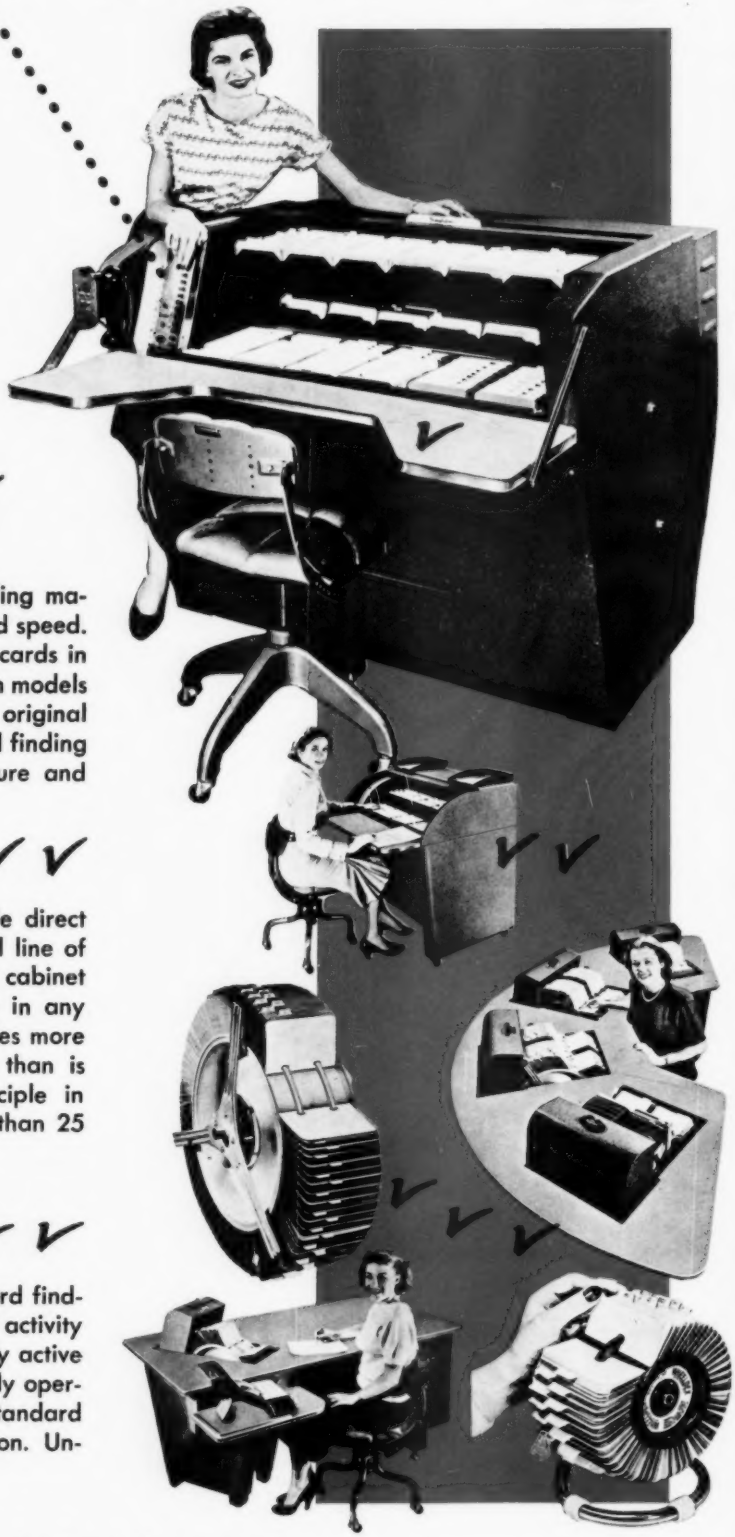

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